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# CAPT. JAMES BOX'S

# Adventures and Explorations

IN

# NEW AND OLD MEXICO.

BEING THE RECORD OF

## TEN YEARS OF TRAVEL AND RESEARCH,

AND

A GUIDE TO THE MINERAL TREASURES OF DURANGO, CHIHUAHUA, THE SIERRA NEVADA, (EAST SIDE,) SINALOA, AND SONORA, (PACIFIC SIDE,) AND THE SOUTHERN PART OF ARIZONA.

BY CAPT. MICHAEL JAMES BOX,

*Of the Texan Rangers.*

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# PUBLISHERS' NOTICE.

THE following work has been put to press in the absence of the author. It may be possible, therefore, that some errors of orthography of proper names may have occurred. If such have been made they will be corrected in a new and more complete edition of the "Notes," which will doubtless follow this first edition, in due time. The publishers present the work to the public, believing that it will prove of unusual interest and value to the many who are now turning eager eyes toward the vast regions described in the "Notes."

To

COL. BENJ. McCULLOUGH,

THE GALLANT SOLDIER AND RANGER,

THIS LITTLE BOOK,

THE RESULT OF

YEARS OF RESEARCH AND PERSONAL EXPERIENCE

IN THE WILDS AND FASTNESSES OF

THE NEW LAND OF PROMISE,

IS DEDICATED,

BY HIS OLD COMPANION IN ARMS,

THE AUTHOR.

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# AUTHOR'S PREFACE.

I HAVE been prompted to this account of the mineral resources of Mexico, by having been, for ten years, the daily witness of facts proving the great wealth hidden in the recesses of the Sierra Madre, and lying at the bottom of the rivers emptying into the gulf of California. Jealous to secure to my countrymen a more intimate knowledge of a country toward which English capitalists have already begun to direct their thoughts and endeavors, I resolved to give them the description, imperfect as it is, which my pretty thorough knowledge of Northern Mexico enables me to communicate.

Americans have a sort of pre-emption right to those countries lying along their boundaries; especially when, by treaties, by means of commerce, and by peaceably settling those provinces and developing their resources, they bind them to the United States by the strongest of ties. It will only be when we shall have thus taken possession of Mexico, that an end will be put to civil warfare within her borders, and her degraded population become elevated into prosperous, intelligent, and peace-loving citizens. Filibustering, which is the ill-directed effort of the few to grasp what ought to belong to the nation, will then die a natural death, and civil warfare be heard of no more. Immense benefits would arise from directing American capital into channels so remunerative and so near at hand—benefits which, in the excitement of the fierce contentions of party spirit, are being overlooked.

In Mexico lies a vast region of silver, which can never be made to enrich Mexico as it now exists. What she lacks are energy and capital. These great wants the United States can supply—the first of these two requisites being her "staple commodity," and the latter not being "scarce."

Mexico is only known to the world of the last half of the nineteenth century by its civil wars. Around it still lingers something of the romance of its early Spanish history; and its very name brings to mind the high daring and indomitable spirit, the cruelty and avarice, mixed with a singular gallantry, of its conqueror, Cortez. All the more do those old legends haunt us, because in the present state of the country the evident lack of vitality forcibly recalls the first devastation which the rapacious Spaniards brought upon it, and we forget that any more prosperous age has intervened.

In the early part of this century the product of the mines was twenty-three millions annually, and the commerce of the country amounted to twenty-six millions. What a contrast to its present impoverished condition! Now only a few of the richest mines are known by name; whereas, according to

Baron Humboldt, three thousand mines were at one time known, a large number of which yielded richly. A few are still worked by companies powerful enough to defy the influences of civil commotions. But the world as yet knows little or nothing of the recesses of the Northern Sierra Madre, which the Spaniards had only begun to explore at the commencement of the revolutionary war, since when nothing has been done. The mines which they had opened were abandoned, partly because capital fled with them, and partly because the natives, who had been worked under a rigorous and unjust system, when the force which enslaved them was removed, found no bliss like that of idleness, and were only too happy to live on the bounties of nature. More latterly a few have tried to revive industry; but their Mexican indolence and want of inventive skill are serious drawbacks to success. Their only tools are the rough and cumbrous ones handed down from past generations; while the partial prosperity they might achieve with these is continually frustrated by the tyranny and exactions of their petty military chieftains. Another and even greater obstacle to enterprise are the frequent aggressions of the Comanches, on the eastern slope of the mountains, and of the still more bloody Apaches, on the western side.

Thus so long have lain buried rich mines of tin, silver, gold, and copper. Valuable stone, costly woods, and a region of country well watered, rich in bottom lands, and which, at no distant day, I believe will grow cotton, sugar, rice, and coffee, have been kept in unproductive idleness, by the action of so many causes of hinderance combined, as I have mentioned above. Even the grazing lands have been defrauded of their productiveness by the ceaseless depredations of the Indians, who will suffer no herd to roam undisturbed. The inhabitants, victims of such a state of affairs, are a half-civilized, half-barbarous people, who, instead of making even such use as they might of the riches which nature has scattered so lavishly on every hand, occupy themselves with wrangling over the miserable shreds of past wealth, which, when they have grasped a portion, they find torn away by others as unscrupulous as themselves. The few rich and educated are the oppressors of the poorer and less favored classes, allowing them no opportunities of improvement, but, on the contrary, sinking more and more of them daily into *peons*, whose condition is worse than that of the black slaves of the Southern States. The examples set them by their superiors, of idleness, licentiousness, and all manner of profligacy, have their influence on the peons, who are, in every sense, almost utterly degraded. That retribution must follow such reckless ignoring of every moral duty imposed upon the better classes by their superior intelligence, cannot be doubted. Either they will yet see acted by the debauched people the old French drama of '93, or their own insolent necks must bow to the yoke of universal Yankee dominion. Indeed, it seems likely enough that "Los Yankees," as they sneeringly term all Americans, may yet work their mines of gold and silver, and own their vast ranches and haciendas.

The field of industry which I have endeavored in this work to show to my countrymen, will not offer any inducements to the adventurer, or idle man. Only men of capital, and men of good, hard muscle, and steady habits of persevering industry, need try their fortunes in Mexico. Those who foolishly expect to undertake mining without an abundant "fund" to work with, will find themselves disappointed of their object. Neither will capital without experience suffice.

To advise those who would open trade with Mexico would be useless. They must judge for themselves of the probable results of any particular kind of commerce. I can only add the caution, that those who come to pursue agriculture should look carefully to their land titles, as well as to the advantages of a good location. Let emigrants go in sufficient numbers to afford mutual protection; and if they be the right sort of men, they cannot fail, in such a country and climate, to make themselves good homes in a very few years.

M. J. B.

# THE VALLEY OF THE SONORA.

# THE
# VALLEY OF THE SONORA.

## HACIENDAS.

THE Sonora river has two forks or prongs, the right one of which bears the name of the main stream. The country along both sides of the Sonora is fertile and well cultivated. About three leagues from Hermosillo, is the farming village of *El Chino* (the curly), where wheat is raised in large quantities. One league further up, we come to the hacienda of *La Cabeza del Toro*, or Bull's Head. At the distance of another league up the valley, is *El Molino Viejo* (the Old Mill). Passing this by two leagues more, we come to the very justly celebrated hacienda, "*Topahui*," the property of a gentleman by the name of Gandara, where formerly there were nearly four leagues of land cultivated. This ranche employed three hundred peons (day laborers), and twelve hundred harness mules in its cultivation; and raised from twenty-five to thirty thousand *fanegas* (about one bushel) of wheat, and sixty thousand fanegas of corn. Four hundred yoke of oxen were yearly fattened on this estate, and five hundred hogs. Such was "Topahuî" in its days of prosperity, until the fortunes of war compelled its enterprising owner to abandon it in 1855. The peons were scattered, the fine herds of horses, mules, and cattle, driven off by the soldiery, and the broad fields laid waste. Fortunately for the future, the same productive soil remains. Besides this hacienda, Gandara owned mines and other ranches, which all shared the fate of "Topahuî;" three leagues beyond which is one of rather less note, yet large and valuable. At this place I saw three sets of fine French burr-stones, which had been used in his mills. Gandara usually employed American or foreign mechanics upon his mills, in making improvements, and keeping them in order, and was noted for his hospitality to all Americans. Notwithstanding his losses, Gandara is still worth large sums of money in coin. The present administrator of his estates is a German.

### URES.

Proceeding a few leagues farther up the valley, we come to Ures, the capital of Sonora. Here are the archives of the state. Here, also, resides the supreme judge, though the governor is seldom here. The valley is very fertile at this place, and the town, which has a population of six or seven thousand, is quite lively. The lands in the valley, above and below, are well cultivated. Fine orchards of figs, oranges, quinces, lemons, and grapes, beautifying the region about Ures. At this town is printed the state newspaper, "*La Vox de Sonora.*" Its editor and printer is a German, who once published a history of the expedition of Raousset de Boulbon to Sonora.

### TAPAURY.

Eight leagues from Ures, is a farming and silver-mining district. Here is the hacienda of Tapaury, owned by an Englishman. This Englishman when he arrived in Sonora was, in expressive Yankee parlance, "dead broke;" but happening to be blest with some of this same *Yankee* genius, he went to work with a will, bought a farm on credit, opened a mine as best he could, cut a ditch for water with his own hands, constructed a rude wheel to work an arrastra (a mill for grinding ores), brought the ore over little by little, and after a while paid for, and extended his lands. The result of this energetic and persevering course is riches, as might have been prophesied. His mine is now in good order, and his farm in a good state of cultivation. The ore of the mine is silver, giving an average of five marks to the "bulto," or nine hundred pounds.

## WAYSIDE TOWNS AND PLACES.

Eighteen leagues beyond the hacienda of TAPAURY is a place called *Molino*, "the Mill." This is a farming community, and considerable grain is raised. Several flour-mills are in operation, and the population numbers one hundred. Three leagues beyond MOLINO is another small farming town called BABIACORA. The inhabitants also follow gold-washing on the hillsides to eke out their small means of living. Beyond this, eight leagues, is ALCONCHI, or "Shell," a small and pretty village, on an elevated spot, overlooking Sonora river. It bears the traces of past prosperity; and even now quite a lively trade is carried on here. Many old mines, once worked, are discoverable in its neighborhood. Six leagues farther up brings us to HUAPACA, another small farming village. At this place, whitening one whole league of the northern bank of the river, is a gold and silver mine, once worked to a considerable extent, and showing that it might still be made to yield large profits. Beyond this mine, three leagues, is BARNAMICHI, a place of three hundred souls. A few years ago a rich mine of gold was discovered in this neighborhood, for which the owner was offered seventy-five thousand dollars, which he thought proper to refuse. At a distance of eleven leagues on, is a little town called LEGUARIPE, where both farming and mining are carried on. The mines of Leguaripe are small. Only a month ago a poor man discovered a mine in an old hunting-ground, which was purchased of him for six thousand dollars—quite a comfortable fortune in Sonora. The mine promises to prove a rich one.

### ARISPE.

Four leagues up the valley from Leguaripe, is Arispe, the old capital of the state. It is situated in the most healthy and beautiful district of Sonora. Its elevated location gives it a commanding view of the Sonora valley and of the surrounding country, made picturesque by the extensive orchards of every variety of fruit. The central position of Arispe is very favorable, it being nearly equi-distant from the principal town in the state. Good roads lead to Guayamas and to Sta. Cruz, at the source of the Mayo river, whence the distance is short to Hermosillo, or Alamos. Around Arispe, far and near, are numberless mines of gold and silver, tin, zinc, copper and lead, and other metals not so well known. Some mines have been worked to a great depth ; others have only been scratched over. The present state of the country renders mining in the neighborhood of the Apaches so dangerous, that none venture to engage in it. Arispe is like a beleaguered town, the inhabitants being compelled to keep in-doors after nightfall, for fear of being shot down by the " rascally Apaches," who are forever prowling about in the neighborhood. The country, already half depopulated by civil and Indian wars, the few remaining inhabitants are frightened into a state of cowardly submission to these Indian depredations, and no longer make any resistance, except by that way known as the "better part of valor," *i. e.*, a discreet keeping out of their way as much as possible. This scourge has caused the abandonment of numerous mines and haciendas, which were undoubtedly rich properties. The only manner in which the country can be relieved of it, will be by keeping a large and efficient force at Arispe, with skirmishing parties to intercept the Indians on their robbing and murdering expeditions. At present, only large companies of men could venture to work the mines; and they, under very great annoyances.

A few severe lessons, administered by American soldiers, might have the effect to intimidate these powerful and insolent savages; but the Mexicans are so well under their control, that now, to defy them, except in full force, would be a dangerous experiment. Already the Apaches know the difference between our soldiery and that of Mexico, and are not over-willing to encounter them. Let them, therefore, understand that we contemplate a serious exterminating warfare, and let the government see to it that the design is carried out. Such a course would open Sonora, rich in every mineral product, to American enterprise, and insure the gratitude of its people. Then Arispe might hope once more to be the capital of Sonora. Then her closed mines and deserted haciendas would echo with the sounds of industry, and bloom again with beauty. While at Arispe, I visited one house in which lived eight poor widows, all of whom had lost their husbands by the hands of the murderous Apaches. Arispe has once been a well-built town, though now considerably fallen into neglect and decay. A beautiful Alameda (shaded walk), yet remains of its former beauties, and is now the chief boast of the city.

Southeast, four leagues, is the "Babicanora" mine, in a rough, mountainous country. This is an old mine of the Spanish time. Great quantities of both gold and silver have been taken out of it. The silver is a hard ore, of fine metal, reduced by quicksilver, or in furnaces and arrastra. The gold vein is narrow and soft. An old man, Dr. José Salagan, long administrator of this mine, related to me his experience with this soft gold-ore. He said his laborers were generally exceedingly bedaubed with the mud of the mines on coming out; (the Mexican miners work with no other clothing on than a strip of cotton-cloth around the loins;) and the doctor had occasion to remark, that they were very careful in washing themselves to save the dirty water in a batea. Being anxious to know why so much care was used, he, one day, after watching this process, took out his horn spoon and dipped up and washed the dirt at the bottom of the batea, which was found to contain an ounce of gold, of fine quality. This induced him to place a large batea at the mouth of the mine, in which this soft mud was saved. Large quantities of rich ore have been taken from this mine. It was finally abandoned on account of the unsafe condition of the works, a want of water, and the Indian annoyances. But in 1852, a company of twenty-two Frenchmen took possession of it. They proceeded to cut a tunnel at the base of the mountain, so as to strike the river, and open washings on a safe scale. They worked with energy, but without any great success, as they only cut some small threads of ore. Their tunnel is of a regular or uniform size; large enough to answer all purposes of drainage; with carriage-way for ores and rubbish, as well as a passage for the operations. It is four Mexican varras (a varra is 32 inches,) in height, the same in width, and five hundred and fifty varras long. These Frenchmen have worked several mines in this vicinity, one of which is called "Grenadita," and yielded seven thousand dollars profit to the year. Another, the "St. Domingo," paid six thousand per year. Some of the threads, opened by the tunnel, yielded rich ore, but not in sufficient quantity to pay well. The main vein, when struck, is expected to produce richly. Credit must be bestowed upon this French company for their seven or eight years of persevering effort. I have also a tribute to pay, on my own behalf, for the courtesy with which I was treated by these gentlemen. Indeed, I was told that all strangers, and especially Americans, were hospitably entertained by them; and I am proud to acknowledge the indebtedness for myself and friends, to these sons of "La Belle France."

Four leagues from Arispe, in an eastern direction, is the mine of "Sta. Rosalia." This is a gold mine. The vein is visible on the surface for a distance of more than three leagues. Incredible stories are told of the richness of this mine. It is said to have presented to the church of Arispe a hundred thousand dollars in ornaments of gold. This mine has been unworked for many years, and it will require capital to reopen it. All the old works are in a ruinous state, wanting cleaning and timbering before the ore can be taken out.

Twelve leagues southeast of Arispe are the old reals (mining towns) of "San Juan" and "San Pedro." The mines here have been extensively worked, and are in magnificent style. The patios (work-yards) are handsomely paved with flag-stones closely resembling marble. The buildings yet standing are in a good state of preservation; and the substantial elegance of the mining property here shows that the profits must formerly have been very great. The nature of the works proves the mines to have produced amalgamation metals. Mines situated in a Catholic country would not fail to be liberal to the church. Large donations have been made to it by the benighted miners. In the "Capilla" church of Arispe are evidences both of the wealth of the mines and the generous contributions of the miners. Massive ornaments of gold and silver, rudely shapen, are there in profusion. The Sta. Rosalia donated to the church one varra, or one twenty-fourth part of the mine; and in the archives of the church the deed of donation is still preserved.

In a mountain called "La Catalania," is a silver mine of great richness. Some former discoverer had apparently taken the precaution to cover it over, where it was visible at the surface; but, as the gentlemanly Apaches live in that neighborhood, it had not been revisited for the purpose of working it. An attack of five hundred Apaches on the mines of San Pedro and San Juan was the cause of their abandonment and ruin.

In front of Arispe, on the west side of the Sonora river, a small creek of fine water empties itself. Twelve leagues up this creek is situated the hacienda of *Barcanuche*, the largest and finest in Sonora. Barcanuche is an Opata word, which in Spanish is *Bonanza*, and in English signifies a *fortunate place*, or a windfall of fortune. This hacienda is the property of Dr. Pancho Perez, of Ures, and boasts a very fruitful soil, abundant water, fine timber, and a beautiful location. Game, also, abounds in its neighborhood, deer and turkey being very plenty. The estate is valued at a hundred thousand dollars.

### CHINIPAS AND BACUACHI.

Following up the Sonora river from Arispe, north, distant eight leagues, is Chinipas, a small village of OPATA Indians. Along the road from Arispe to Chinipas, there is very little farming land, as the country is mountainous, and the river runs in a narrow gorge between the hills. The Opates are a tribe of Indians who live in the lower valleys of the mountains in this part of Sonora. They are peaceably disposed, and are stock-raisers and farmers generally. Some of them have handsome small farms and good cattle.

Following up the river, which becomes all the time narrower, until the traveller is forced to leave its bed and take to the mountains, one league's travel brings us to Bacuachi, a place destined from its situation to become of some importance, whenever the opening of the country shall give an impulse to its natural elements of power. It is situate on a small, elevated plain, on the west side of which runs the Sonora river, while on the east are numerous springs of water spouting out of the ground, which give the town an appearance of being surrounded by water. Hence came the Opata name, which signifies *island*. Its population, once amounting to three thousand, has, within the last fifteen years, been reduced fully two thirds. In the immediate vicinity of the town there is little arable land; but, as the Sonora forks about one mile above, making wide tracts of bottom land on either branch, there is plenty of good farming land to produce the requisite amount of grains, &c. Along the left or north fork are fine fields of corn, wheat, barley, beans, and fine orchards of figs, peaches, pears, pomegranates, and other fruits. This land is irrigated by ditches of water, the water being taken in an aqueduct five leagues above. Great durability is displayed by the cement of this aqueduct, which is undoubtedly the work of the early Spaniards. At least, the present race know nothing of its construction, nor have they the knowledge or enterprise to have constructed such a work.

The population of Bacuachi is continually diminishing, owing to the inroads of the Apaches, who have left them no stock. At the time of my visit there were only three milch cows in the town; yet this is a fine grazing country, and herds of horses, mules, and horned cattle, used to roam at large, covering with life these grassy plains, now desolate. Remains of ranches, or stock farms, are everywhere seen; and yet only three horses could be found in all Bacuachi when I was there. When the inhabitants go to the fields they go *en masse*, and sentinels are posted to give the warning if any Indians come in sight. Should such a warning be heard, the whole population fly instantly to their houses. The Apaches knowing, however, that they have nothing left to steal, go scornfully by to richer places of plunder. Should they meet a stray Bacuachian, they would put an end to his fears by putting an end to his life, just for the "fun of the thing." All the water used in the houses is brought from the river by the women, a distance of one hundred and fifty yards. Should any woman be so neglectful as to fail to bring water by day, there can be none in the house until the following day; for, to issue out alone or at night, is not to be thought of. The women go out in large parties, bearing their water-jars of baked clay upon their heads, and escorted by a convoy of armed men, to procure the day's supply. Nothing could be more meagre or uninviting than the diet of these Mexicans. Having no meat, they are compelled to live upon grains; and "panole," or corn parched and ground, "esquit," parched corn, and "tortillas," a sort of corn-cake, with beans and fruits, constitute the Mexican bill of fare. Frequently not a grain of salt is to be had—the Apaches having cut off their supply by attacking and robbing the convoy. At the time of my visit, one peck of salt brought five dollars.

One hardly knows whether to feel most pity for the troubles, or scorn for the cowardice of the Mexicans. Their badly-paid, badly-clothed, and miserably-fed soldiery, commanded by worthless officers, are wholly unable to engage in warfare with the powerful Apaches. The garrison which is kept at Bacuachi scarcely suffices to protect its one thousand inhabitants from slaughter in open daylight. Their fear of the savages is quite as great as that of the citizens, and they are as quick to run at the sight of one, or are careful if they shoot to fire into the air, for fear of consequences. Owing, doubtless, to the poor fare of the people, they resemble skeletons, with skin dried to their bones. I was not able to find, among the citizens of Bacuachi, more than one individual who had any fat on his person; and I will venture to say that he had something good to eat in his house, how procured I know not.

Where the left prong of the river has been dammed, for purposes of irrigation, on the south side, fronting on the bluff, is a silver mine of a greenish ore, tinctured with copper. It is reducible by amalgamation, and has been but slightly worked, though to work it is easy and profitable, as at this place the stream forms a pan, being shut in by high and precipitous banks.

For about four miles from this place the road lies in the creek bed; but, after getting over this narrow pass, the country opens out into a fine wide valley, of good soil, mesquit timber, and good grass land. Up this valley, three leagues, is a deserted hacienda, with good buildings and outhouses, and all the appurtenances of hacienda life. Desolated fields and orchards show that it has fallen a ruin before the destructiveness of the Apaches. Another league or so farther on, the valley again narrows up, and fine groves of cottonwood and ash begin to appear.

### THE HEAD WATERS OF THE SONORA.

The mountains, which run in a general course north and south, are covered with tolerably good pine timber, and scrubby oak in abundance. This oak bears very sweet acorns, much esteemed by the natives and Indians, the latter of whom make bread of the flour of them mixed with grass seeds. They are called "Bejote dulce," and are worth three dollars a peck in Hermosillo. Following the stream for another five leagues, we pass only some groves of ash, or "fresno." This tree is in high repute with the Mexicans, it being their belief that rheumatism, or any bodily pains may be healed by simply carrying a cane of its wood. Whether their experience confirms their belief, I am quite unprepared to relate. Faith, which "works miracles," may accomplish the cure which their beloved fresno is of itself unable to perform.

At this distance the stream has dwindled to a mere spring-branch, and the country now assumes the character of an elevated, rolling prairie, of great beauty. The climate here is delightful. The heats of summer are relieved by continuous cool breezes from the uplands. No insects disturbed my repose; but game, such as deer, turkeys, and an occasional specimen of the genus bear, gave employment to my watchful senses, used to be on the lookout for all things of a wild nature, whether turkey or Apache. At this point, the branch, from heading west, makes a sharp elbow toward the north. Enclosed in this bend is a ruined hacienda, the owner of which, I learned afterward, was driven away by the Indians, after having occupied it but a short time. This hacienda was built for the purpose of reducing the ores from two mines, situated at the distance of one league from the reduction works. The ore of one of the mines is of silver, and the other of galena, very pure. The lead was used as flux in reducing the silver, besides paying ten per cent. of silver in its own reduction. The surplus lead was disposed of to other mining companies, to be used in cleansing ores, and found a ready market as long as the surrounding mines were worked.

I considered the mines at this place as ranking A No. 1, both for quality and quantity of ore, and for facility of reduction, as well as because the surrounding country is so well adapted to settlement. The plains extend to the head waters of the San Pedro, a distance of twenty or thirty leagues.

On the trail going to Sta. Cruz, distant twelve leagues, is another mine, called "Cananca," which was abandoned twelve years ago on account of Apache depredations, its one hundred and fifty workmen not being able to protect themselves against their encroachments. This mine was worked by a Dr. Francisco Perez, now residing at Ures, who made it profitable. Its ore is silver, mixed with copper and lead, and like the other mine of a similar ore, was easily worked on account of the facility for reduction by a moderate heat, and the different ores serving as flux for each other. The smelting furnaces are still standing. Near this mine are several other unworked mines of copper. About them is good farming and grazing land, and abundant timber for fuel. Indeed the country affords greater inducements to settlers than any mining district I have ever seen, but is overrun by the Apaches.

A population of foreigners might, and probably would, soon disperse them, as will undoubtedly happen in a few years.

### HEAD WATERS OF THE SAN PEDRO.

The plain which heads toward the San Pedro river, (this river heads out of the Sonora, but empties into the Gila,) is of a more broken surface, and bordered by mountains, in which are known to be gold placers. Here, as every where else, the Indians prevent their being mined. Eight leagues from where the waters rise, and on the old emigrant road to California, is a ranche, now deserted, except by a garrison of fifteen men, who cultivate a small portion of the land. The soil is fine, and along the stream is mesquit and cotton-wood timber: but, as this is on the great trail of the Apaches, who are always on excursions of robbery and murder, to Sonora, very little security could be had by small isolated parties of settlers. The San Pedro is a good mineral country, if not one of the best, and furnishes deer, turkey, and other wild fowl, for game. Seven leagues east of this ranche, (which is called *Ranche de Sonora*, and belongs to Dr.

Rafael Elias, of Ures, deceased, a brother of the Supreme Judge of the State,) is the mine of "Mariquilla," once very successfully worked. Two leagues to the east of, and around this mine, is a complete net-work of silver and copper mines, which were formerly reduced there. The houses and furnaces are still standing at the foot of the mountain called "Ronquillo." Before the Indians drove away the miners, these mines were worked by one Signor Arballa; but, for eight years, have been entirely abandoned.

On the east side of the San Pedro, at a distance of five leagues, is the mountain of "Huachuco," in which is a mine of argentiferous lead, containing a fair *per cent.* of silver. This mine was anciently worked to some extent. This same mountain is said to have some placers of coarse gold; and thus runs the legend concerning it: A prisoner, escaped from the Apaches, was hiding in the Huachuco mountain, trying to make his way home to his friends. While exploring its recesses in this manner, he found and collected quite a large amount of gold, with which he succeeded in reaching the settlements. But, not having a proper fear of the Apaches before his eyes, he undertook to return to the same place, was captured and killed; and the exact locality of the placers is not known. Neither will they ever be, if it depends on Mexican energy and courage to make the discovery.

Four leagues below the Arizona and Sonora line, and about half a mile from the river, on the east, at a place called "los Mojales," (nut trees,) is a mine that was discovered in 1859, by a party of surveyors, of the Survey of Sonora, second assistant engineer Thompson in command. I examined and assayed the ore, finding it to be copper and silver. It is reducible by amalgamation, like all this class of ores. There is water enough here to make mining convenient. Smelting, which would reduce the ore of this mine readily, would still leave it in a state requiring one more operation for separating the copper, and involving the expense of fluxes and fuel. I should judge this to be a valuable mine; and it is upon American territory.

There are many more veins of mineral on the San Pedro. None, however, have yet been opened, and but few prospected. This mineral region is distant only thirty miles from Fort Buchanan, from which a good wagon road might easily be made. Nine miles from here is the beautiful ranche of "Babacomeri," deserted on account of Indians; and twelve leagues away is the Overland mail station of *Dragoon Springs*, to which a road could be opened without difficulty. Such is a brief account of the country along the Sonora and the San Pedro rivers. Let us now retrace our steps until we come to the

### RIGHT FORK OF THE SONORA.

One league below Bacuachi, on the south side of the river, close up to the bed of a dry creek, is a chain of abrupt mountains, running right up to the Sonora river. About half a mile from the spot where this chain intersects the river, is a mine of silver, of amalgamation ore, and but slightly worked. I did not assay it, but saw it tested, and was convinced it would pay very well. The ore is massive, of a dull greenish color.

The right, or south fork of the Sonora, has a wide valley. About one league up it are extensive "Sienegas," or meadows, which afford fresh pasturage all the year round. Two leagues farther on, passing through a fine farming country, timbered with mesquit, we come to a deserted ranche, showing signs of having been an extensive stock and grain farm, with the buildings still in a fair condition, though totally deserted. Passing this ranche, we find no water for four leagues; yet the country is good. Coming to where the mountains intercept the river again, we find water. This chain of mountains runs east and west, crossing the valley. In the bed of the stream is a ledge of rock, forty-five feet in height, at the foot of which is water. Ascending the mountain, here due north, we find a silver mine, the vein running at sight up the mountain, in a slightly inclined direction, for a mile. It has been worked along some of its length, and at certain places to a considerable depth. Fine specimens of wiry, native silver, have been taken out; but the hardness of the rock requires the best of tools to work it. I succeeded in getting out a little, almost without tools, assayed it, and found it to pay fully thirty-two per cent., a very high percentage considering the weight of the ore. The vein is from twenty-two to twenty-six inches wide, and not difficult to work. From appearances I should judge that the last work done in it had been done by fire, as the blackened walls of the works testify. It frequently happens that when the rock is hard, the miners make a great fire, and when the rock is sufficently heated, suddenly cool it by throwing on water; which rapid change of temperature causes a portion of it to crumble.

A little below the ledge, on the bank of a dry stream, is the hacienda where the smelting and reduction of the ore was once carried on, now deserted, like so many others. Remnants of fine china-ware, and bones of human beings scattered about, tell the story of Apache onslaught. This mine, which I consider one of the best in Sonora, is easily found. By following the South fork of the Sonora until stopped by the above-mentioned ledge of rocks, and proceeding a few hundred yards to the left, the explorer cannot fail to find this rich deposit of silver, which I hope some capitalist may consider it to his interest to work out. The country around it abounds in wild fruit,—delicious wild cherries, bejote dulce, wild dates, and the grass seeds used by the Indians to make bread. Manganilla bushes also cover the side of the mountain. The timber here is oak and pine, producing a sweet nut, called pinores. Above this point the country is rough and mountainous, and infested with Indians, who make it their residence.

## THE GOLD DIGGINGS OF BACUACHI.

On the south side of the river, some two miles distant, are placers of gold of considerable interest. It is found in the edge of the mountains, in gulches and surface diggings. It has been but little worked, there being no water nearer than the river, and the Indians being troublesome. About three leagues further southeast is a high table-land, called "Buenos Ayres," (strong wind.) From this plain, an extensive view of the country can be obtained, including Bacuachi. A chain of mountains bounds this plain on the southeast, in which is a pass, through which the wind from the Pacific comes rushing with astonishing violence, and where all the powers of air and tempest disport themselves. This Buenos Ayres is a deep gold mine; but the water being four leagues away, it can only be worked in the rainy season; when the Mexicans with horn spoons and wooden bateas, wash and dig, making quite handsome profits. The table, land is perforated by holes from sixty to seventy feet deep. All the dirt is auriferous, and bears coarse gold. Pieces weighing from six to seven ounces have been taken out here, and some lumps weighing one or two pounds; but I would not be understood to say that they occur very frequently. However, that it is one of the most valuable diggings of Sonora I have no doubt, and could water be brought here in sufficient quantity, it would pay better than any California diggings I ever have seen. At this place there is very little trouble with the Indians.

## VALLEY OF THE
## FRONTERAS AND YAGUI RIVERS.

# THE FRONTERAS,

## BRANCH OF THE YAGUI.

After leaving Bacuachi, on the road to Fronteras, about seven leagues away, we reach a high mountain which the road ascends. This is the dividing ridge between the Sonora and Fronteras rivers, the latter being the most northeastern prong of the Yagui. Before reaching the summit of the mountain, on the right hand is a spring of the purest water that ever weary and thirsty traveller hailed with delight—made doubly delightful by the grateful and refreshing shade that hangs above it. That this spot made a lasting impression on my mind, was partly owing to its agreeableness, and partly to the fact that it was here that I and a single companion celebrated "our glorious Fourth of July," 1854. For our dinner we had "panole" (corn parched and ground) and "panoche" (the common sugar of the country). Apache tracks were everywhere about us, suggesting the possible fate of unwary travellers; but we hoped much and feared little, eating our dinner in quietness. Passing over the summit of the mountain, a descent of three leagues on the other side brings us to where the mountain's foot is set in a beautiful sienega, or meadow. Here is the Yagui water, with a pretty country bordering it, of good farming land. Following and hugging the mountain on the right, after three leagues we come to the mouth of a cañon turning to the southwest. Keeping up it some little distance we find water, and not far above, a mine of a more recent period than any which I had found in that part of Mexico. I afterward learned of the Fronteras people that it was discovered just previous to the California excitement, and worked for a time by a gentleman with a legar number of hands; but the California emigration killed the enterprise, and since that no one has had the energy to reopen the mine, though it paid very well. The only implement of mining I had about me was a butcher-knife, but I succeeded in entering one of the holes and scratching out a little ore, which was afterward valued at three dollars. The excavations average from four to six feet in depth, and seem to have been opened promiscuously, here and there, for a mile and a half; but not reaching the head of the cañon, which is probably four miles in length, and sixty yards in width. No doubt the whole distance could be successfully worked. There is the advantage of lasting water, and plenty of excellent pine timber also, at this place. California miners, I have no doubt, would find gold-washing here very profitable; always provided that they come in numbers strong enough to keep the scalps upon their heads.

I followed along the spurs of the mountains about four leagues southwest, without discovering water. Sweet acorns and pine nuts were plenty. At this distance I entered a dry creek or cañon, where, from the appearance of the ground, the ancient Mexicans, or the Spaniards, must have worked extensively in the rainy season. The earth is almost torn open by the excavations which everywhere abound; and that these were profitable diggings seems evident from the great amount of labor expended here. Taking a northeast course, and turning into the valleys in search of water, I proceeded about four miles, when a trail of wild animals was struck. This trail leading up a deep cañon, I followed with a watchful eye, for Indian tracks were not wanting along it, and it was narrow, dark, and dismal, with the shadows of the oak trees and bushes which overhung my head along a distance of two miles. Here the cañon turned south into the mountain, and at the end of another two miles a small spring of water was discovered, at which we slaked our thirst and took some rest. The bank out of which the water came was of a reddish dirt mixed with quartz. I washed out some of this dirt in my tin cup, and found a sediment of round, yellowish, grain gold in the bottom. At twenty different places along the cañon I repeated this washing, and in some cups forty grains of this fine gold were left. With plenty of water and a common sluice I should not fear to risk my fortunes here. A man might easily take out seventy dollars per day. But *one* man would utterly fail for want of provisions and personal security from Indians. A company large enough to leave a party in the mines, while another party went out to convoy the supplies, could alone do anything.

### RANCHE OF TAHUICHOPA.

Going east again, one league, we struck a valley, which, following east for four leagues more, brought us to the deserted ranche of *Tahuichopa*, or "spouts of water," from two Opata words: Tahui, *abundant*, and Chopa, *water-spout*. The Fronteras river heads here, the water spouting out of the ground in jets as large as a man's arm, and in so many places as to readily form a creek of running water. The ranche of Tahuichopa is a beautiful farm, and one of the most extensive and valuable in Northern Sonora. There is plenty of land here capable of irrigation, and plenty of water to irrigate it. The Tahuichopa horses were once celebrated for beauty of form, speed, and endurance, and their reputation is still high. In this part of Sonora large "caballadas" of them were kept, in which the owners took great pride. Now, the remnants of these fine caballadas roam the plains and valleys at will, and so wild that even the Indians cannot catch them. Of the large herds of horned cattle which once grazed here, one solitary old bull was waking the echoes of the valley in notes which seemed to regret that the Apaches had not eaten him along with his companions.

### FRONTERAS.

Travelling north from the ranche, and following the stream, we see fine land, good water, quite plenty for irrigation or machinery, and a fine grazing country. A large mountain turns the river out of its course, so as to cause it to make almost a perfect circle upon itself. Following this bend, we have for eight leagues excellent grazing land on both sides of the river, and but little timber. The soil is a rich black loam, very different from the soil of the Sonora valley. The stream runs narrow and swift, unlike the sluggish waters of the Sonora river. Fronteras has a Mexican garrison, a fort, and a population of—citizens and soldiers together—some fifteen hundred. It was formerly a farming town, but as no farming can be carried on without a guard of soldiers, very little is now done. The danger of losing their cattle makes the people careless about having any, and they are exceedingly poor, though they raise some wheat, fruit, and vegetables.

Several years ago, a Mexican commander, of Spanish descent, Antonio Narbon, acquired considerable renown by his successful forays against the Indians. While he commanded, some protection was afforded the inhabitants, and the Indians were stayed in their depredations for several years. Since his death, desolation and ruin have come rapidly upon this part of the country. His residence, which was very magnificent, was south from Fronteras, on another fork of the Fronteras river; and the place is still one of much interest. The best wheat that ever I saw was raised here. There is also a very extensive peach-orchard on the farm. Narbon had adopted an Apache boy, by whom he was afterward decoyed to a rendezvous of the tribe, and cruelly given up to be murdered. His widow and son now live at Ures.

Fronteras is on a bluff on the west side of the river, where is the fort also. Standing in the fort, and looking toward the sunrise, at the line where his rays strike on a mountain, you may look straight into the mouth of a mine, distant about one league, the road to it being circuitous. The hacienda belonging to this mine is on the river; and from the large amount of scoria or slags, and from the large size of the slags, the ore must have been easily smelted. In the mine, which has been extensively worked inside, I found the tools of the last laborers there, just as they were left at the time of their general massacre by the Indians. Since that event no attempt to work the mine has been made by the superstitious inhabitants, who no longer have any spirit to resist their sure and deadly foes. The Indians had left the Fronteras people one cow and calf, which was kept within doors, and a few horses, carefully guarded; for, when they cannot be taken, they are killed by some lurking thief of an Apache. There are plenty of fine hogs here, which animal the Indians will not steal. Fronteras raises peaches in abundance, besides some other fruits; and mesquit and cotton-wood timber.

### SAN BERNARDINO.

Following up the course of the river, due north, for about eight leagues we traverse well watered and beautiful land, whose sole owners at present are the Apaches, an acquaintance with whom it is desirable to avoid. Turning east from hence, and travelling ten leagues, still following the river, which flows through a fertile country, we come to its junction with the San Bernardino, which here intersects it. Before arriving at the junction, we pass the once productive but now abandoned ranche of *Hueparerachi*, which still has some remains of fine peach, and other orchards. Now keeping in the course of the San Bernardino, which cuts the spurs of the mountains from the north, ten leagues more of travel brings us to the old town and presidio of SAN BERNARDINO, situate on the old emigrant road to California, now totally deserted. Here are the head waters of Yagui river; and the old town was the trading post of the Indians in the time of its population. Its trade must have been considerable at one time. There is plenty of good farming-land in the neighborhood, but the water is rather alkaline. This place is but a half mile from the American line of Arizona.

## THE GARDEN OF SONORA.

Returning toward the south of Sonora, four leagues on our way, we find the ranche of *Hanorerachi* at a point of the mountains on the east. It is still in pretty good repair, the building standing well, and is a valuable property. Land and water good. Years ago the fences were set with cotton-wood sticks, which are now grown to fine large trees. Once more at the junction of the Fronteras and San Bernardino, we remark that the land is arable and productive. There are also extensive cane-brakes near the junction, where we cross into the Yagui valley, the river being quite a bold stream, though the water sinks again at a short distance below. The valley of the Yagui is about three leagues wide, and twenty in length, and is, as I have called it, the "Garden of North Sonora," being preferable in my eyes to anything I saw in that State. It affords the richest possible soil, as well as good grass plains. In some places are a thousand acres of soil ready for planting, with no grass or weeds, and not requiring even a plough! Here a poor man, with seeds, and a knife to sharpen a stick, could put in a crop and be sure of a fine harvest, without the expense of irrigation, or even of farming implements. There is no water visible anywhere, but wherever I made a hole the length of a man's arm the water came up plentifully, good and cool. I found three places, where, at a remote period there had been settlements, but none recent; and there was nothing to interest the eye except the naked beauty of Nature herself, who has alternated fields, canebrakes, and grassy plains, in the most admirable order. The valley is bordered by rough and inaccessible mountains. It is a garden walled completely about, out of which there is but one gate to pass. In this little paradise live the Apaches, and should they choose to keep closed the gate, in vain would any "outside barbarian" attempt to gain an entrance.

This valley runs to the southeast, ending where it meets the main Yagui river, coming from the mountains on the east, which separates Chihuahua from Sonora. Should Americans ever get possession of this charming valley, every acre will be worth a golden double eagle, at the very lowest, for purposes of farming. This land is as superior to the Ohio and Mississippi valley lands, as they are superior to any common lands. There is no kind of grain, vegetable, or cane, which it will not grow; and the steady young farmer, who shall come to this valley, will find his fortune in it. The opening of the mineral regions will place a high value upon all the products of the fields, as there will then be a large population who must eat, but cannot grow provisions. Live stock will be easily raised, and cattle flesh will have an additional fine flavor from eating a shrub which grows in the mountains, and which gives an unusually delicious taste to the flesh of animals.

## CROSSING THE MOUNTAINS.

The bed of the main Yagui river, where we struck it, was about eighty feet wide. It was, however, in the rainy season, and the water stood in holes, running merely to clear itself. We found it full of fish of a very pleasant flavor, on which we feasted for several days, using sticks to kill them. The country here is of the most mountainous character—perfectly iron bound, with the exception of the above mentioned valley. Mountains are piled on mountains of every conceivable shape, and exceedingly rough and precipitous, extending to the very bed of the river. They are also quite barren, being nothing but rocks above rocks. Ascending a mountain from here is a trail, probably Indian, ranging in a southerly direction. Following this, we expected to reach the summit; but, four miles of climbing brought us upon an unforeseen difficulty, being nothing less than a deep, nearly perpendicular cut, intercepting our progress. We descended, sliding on hands and feet to the bottom, which was the bed of a dry creek, coming from the south, and extending to the river which we had just left. We followed this channel for two days, climbing ledges, getting over falls, and many times in danger of losing our lives, before we came to its head. Being in great want of water, we turned here in an easterly direction in the hope of finding it, travelling through a country too rough and wild for description. On the third day a shower of rain relieved our thirst, or we must have died of it, in a few hours more. Another three days' travel through the same sort of country (which from the recent rain afforded us water enough for our wants), and we had arrived at Babispe, having seen nothing of interest in the way of minerals, except one copper mine entirely unworked.

### BABISPE.

At this place another branch of the Yagui river forms a junction. Babispe makes some pretensions to be a garrisoned town, though the ground of its pretensions is small enough; Frijoles, without salt, was the food I saw the soldiers eating; yet there are some small spots of farming land about it. May I never see Babispe again! It is principally remarkable for the *thick necks*, "bouches," of its inhabitants, owing, some say, to the water of the country; but, as I believe, to incestuous intermarriage among the people. The Babispeans subsist upon fish and fruit chiefly, and enjoy the bliss of extremest ignorance. Some silver mining has been carried on there on a very small scale, as it must be, by a people who scarcely ever tasted beef.

### MINING REGION NEAR COMPOS.

Leaving Babispe without regret, I travelled south again across a country without a single acre of arable land, rough, mountainous, and poorly timbered with scrubby oak. Seven leagues away I found large copper mines, covering a considerable tract of country, and having an ore of almost pure copper. These mines are near the head waters of the Oposura river, another branch of the Yagui, and about four leagues from COMPOS. A large, travelled road passes close to them, being the thoroughfare of the Indians, who go this road every full moon to drive away large caballadas from the fine grazing districts of Sonora; for the Sonorenses Rancheros are only raising stock for their friends, the Apaches. This road looked as well travelled as the Overland Mail Route, the green bushes along the roadside being covered with dust.

Three leagues from here, on the river above Compos, is a ranche called *l' Ojo de Agua*, or "Water-eye." The river first forms into a stream at this place, rising out of the ground here, whence the name. It is a ranche of some extent, but small population. A portion of the land is arable; and there is mesquit timber in the valley, and pine on the mountains.

### COMPOS.

Following down the stream, we next come to Compos, a beautiful place, with a very insignificant population, and no business of any importance. Once this place was more active, and had five times as many people in it; but now houses and churches are alike decayed and sorry-looking with the inhabitants. It has some little farming land, but its chief interests are in the mines.

### ROAD TO OPOSURA.

Three leagues southwest of Compos, on the dividing ridge between the Sonora and Oposura waters, and on the bank of the latter, is one of the most extensively-worked mines in Sonora. Entering at one of the openings, you may wander inside as long as your inclination lasts, but cannot explore in several days its numerous layers, galleries, pits, shafts, and chambers. It was worked with great system and regularity, which shows that the ore must have been abundant and easy of abstraction. It is a silver and lead ore, easy of reduction, and there is plenty of it left for future miners with capital enough to work it thoroughly. The pillars are yet standing, as well as the walls and roof. The country about it affords good facilities in the way of wood and water, though the former is not abundant. Three leagues further down the stream is a ranche where I found very good improvements, and the first stock I had seen in the country. Even here it is not regarded altogether safe to raise cattle, which are not permitted to stray away from the ranche. The valley here is narrow, and the quantity of farming land small, and hemmed in by mountains. Two miles farther down, in a bend of the river, are some small farms, with a little stock on them, belonging to the Opata Indians. From this point the road leaves the river, which flows south, and takes you four leagues over the mountains to Oposura, in an easterly direction. The whole length of the road is lined with crosses, showing how many victims the Indians have slaughtered along its rugged way.

## OPOSURA.

The traveller does not see Oposura until, by a sole and narrow gap in the mountains just above, he enters it. The view from this height is very pretty; and no one could desire a more retired spot for a residence. He who lives in Oposura has, to all intents and purposes, renounced the world, even if he cannot get rid of "the flesh and the devil." The inhabitants live by agriculture, and some small trade among themselves. Yet the town numbers about three thousand souls, and when the mines were worked above and around it, was quite a lively place. Figs are abundant at Oposura. The silver and gold mines of "San Pedro" and "San Juan" spoken of before, are only five or six leagues distant. The mountains abound in valuable rock and stone.

### ALABASTER VEIN OF OPOSURA.

Southeast, between two or three leagues, is a quarry of variegated alabaster, very extensive and abundant. Some of this alabaster is of a deep yellow color, while other portions are of finely variegated hues. It is very soft when extracted, but hardens on exposure to the air, and takes a fine polish. It is useful in the manufacture of many things, and is used by the people of Oposura for a hundred domestic purposes; though they never conceived the idea of exporting any of it, or that it might become an article of trade. A company could make it extremely profitable; nor would it require anything more than a formality to get possession. At Oposura is a very fine ditch, made with hydraulic cement, for the making of which an Opata Indian gave me the receipt. It is a secret lost to the present race of Mexicans; yet there is no doubt but all the very durable works of the Spaniards were made with this cement. It is composed of clay, sand, and lime finely pulverized and sifted, and mixed with a solution of the gummy substance which is extracted from a plant called "Sama." This mortar will dry without cracking, and take a good polish, as well as harden in water. Its durability is very great. The finer the materials are made by pulverization, the better the cement. The Sama is a parasitic plant of the country, with the bark of which the natives tie the palm leaves or grass upon the roofs of their houses, or make other fastenings. It is easily obtained, very abundant, and if a demand for it were created, might be made quite an article of export. It is more abundant in Sinaloa than Sonora.

### COUNTRY BETWEEN THE OPOSURA AND YAGUI RIVERS.

Leaving Oposura, I travelled about two miles at the foot of the mountains, toward the south, before re-crossing. Four leagues of scrambling, crossing over ravines and gulleys, and scaling some very steep rocks, brought me to the summit. Here I found a beautiful table-land of three or four leagues in extent, watered by small streams, and timbered over with oak and pine. There is good grass, also, and the soil is a rich loam. Altogether it is a most romantic and beautiful spot, and its perfect seclusion adds greatly to its charm. The abrupt descent on either side, the distance to Oposura, the nearest town, and the extensive views of the surrounding country, produce a very novel effect upon the beholder. The climate at this elevation is cool and healthy. The heats of summer are alleviated by the breezes which blow constantly over it; and altogether it forms an agreeable contrast to the uncongenial region around it. A few delightful farms might be made here, and doubtless will be made, when the mines about it are once more worked, or opened in new places.

Proceeding down the mountain, over a very rugged country, cut up by gulleys, ravines, and deep cañons, I passed a place of little importance, called MATAPE, around which are several deserted mines. Continuing westwardly, down to the foot of the mountains, on one of the spurs, I came to the mine of "Las Cruces," worked by a French company. It is a silver mine, and the ore reducible by smelting. Three furnaces were then in operation, yet the profits, though safe, were not very considerable. The mine of "Las Cruces" is five leagues from TOPAHUI, southeast.

Leaving Las Cruces, and keeping the same direction, hugging the mountain all the way, I came to an old mission, three leagues distant. The next eight leagues were over a fine country, of good land, and good mesquit timber, but no water. Some detached mountains were seen toward the west, before I arrived at *Tecoloti*, a stock farm of some extent. Here was plenty of water, for this is the head of the San Marcial river. Here, too, is some fine land for farming. From here I travelled, due east, to another ranche, very old, and, though rich and valuable, useless on account of the Indians. This ranche is ten leagues west of SAN JOSE DE LOS PINOS, on the same stream; and due east from this farm is the "Mazatlan," a prominent mountain, celebrated as having in it a very valuable silver mine. As the Apaches are always to be found there, it has not been examined. Only a large party could venture to make an excursion to it.

## COUNTRY ALONG THE YAGUI.

From the Sierra de Mazatlan, a day's travel brings us to the Yagui river, which is here a large, bold stream. In the valley, before reaching it, are, according to all Mexican accounts, some rich placers of gold. A few leagues above, and below the junction of the Oposura with the Yagui, is the town of SOYOPE, a small trading post. The mines there once gave the place a considerable reputation; but they are now abandoned, and there are only a few inhabitants, of mixed blood, remaining.

Twelve leagues above, on the south side of the river, are some small farms of the Opatas and Nacouris. On this side, also, are several old mines. The Real of SAN XAVIER is the most important, on account of its silver mines, which are still extensively worked. The ore is of silver, reduced by amalgamation. The fact that they are worked at all in this country, where communication is almost cut off by the Indians, is a sufficient proof of their value. It is here that the farmers of San Marcial and the Lower Yagui come when they want to "make a raise."

Farther east, toward Chihuahua, and where the most easterly branch of the Yagui forms a junction, is a town called La Junta. Its present population is only a few hundreds, notwithstanding it must formerly have had several thousands. Its mines are now all under water or in a ruinous condition, having been abandoned since the Spanish evacuation of the country. This branch of the Yagui has, toward its head, in Chihuahua, a rich copper mine, "Cobre Grande," once worked extensively, and still productive. It was worked by Mexicans only, and must have afforded great profits, since to find a market the copper had to be carried, for more than fifty years, as far as the city of Mexico, and upon pack mules a portion of that distance. It sold there as high as fifty dollars a hundred pounds, and could not satisfy the demand at that price.

## NORTH SIDE OF THE MAYO.

The country between the Yagui and Mayo rivers is high, mountainous, and wooded. Nearer the Mayo it is covered with impenetrable thickets of prickly bushes. The timber and fruit trees approximate more nearly in character to those of Sinoloa than Sonora.

Mines abound, some of which have been worked to a great depth. All of them are now under water, and are left in this state for want of the proper machinery to drain them. The inhabitants are either unable or unwilling to undertake their restoration; and, indeed, generally possess too little knowledge of modern inventions to make them of use. The principal feature of these mines is, that the deeper into the bowels of the earth the miners go, the purer and richer ore they find. In many cases the drifts are left with the native silver shining through every part of the vein. The same was remarked of the few which were re-opened in the Fuerte valley. The only one of these mines now worked to any extent, is that of "Los Mulatos," in a high mountain of Chihuahua, but still on the head waters of the Mayo. This has been worked from time immemorial, and great quantities of silver have found their way to Alamos, and the city of Chihuahua, which is reached from here by way of "Jesus Maria," the important mine spoken of in another place.

The Mayo valley, toward its head, has very little land worthy of cultivation. There are, however, a few good farms, and some little patches cultivated by the Mayo Indians; but a little corn and sugar-cane is the only produce. There are plenty of wild fruits of the kinds found in Fuerte valley. Game also is abundant, but very difficult to obtain, as hunting deer up and down steep hills is rather an arduous exercise.

### ON THE YAGUI, SOUTH FROM HERMOSILLO.

From San José de las Pinos and San Marcial I proceeded to Bonancita. From Bonancita to Coumourissa, is a distance of fifteen leagues of fine level road, but without settlements for the whole distance. Coumourissa is situated on the Yagui, near the mountains; the river running from here in a southwesterly direction. Its population is about six hundred, half of whom are Mexicans, the remaining half Yagui Indians. A portion of the Mexicans are stock-raisers or farmers, and a few engage in commercial pursuits. The Indians dig a little gold out of the banks of the river for a scanty maintenance.

From this place, I proceeded up the river in a northeast course. On its western bank I saw several parties of Indians gold-washing. From their success, I should judge that, with suitable tools and machinery, it might be a profitable business. Fifteen leagues farther up, I crossed the river by the help of an Indian canoe, at a place where there had been an encampment. The Indians were friendly and hospitable, and gave me directions to take a southeasterly trail, which, however, they warned me was very dim. As a land-mark they bade me keep in sight of a remarkable mountain, and very high, at whose foot I was to arrive, after travelling eighteen leagues. This mountain is named "Tousimouri," or "the man with the hat on." It represents its name very faithfully, and is a most striking object.

## CURIEJO.

From *Tousimouri Ranche*, which is only an average stock farm, I kept on in the same direction to *Los Ajos*, or "Garlic Ranche," and from there six leagues to Curiejo. There is another ranche four leagues from Los Ajos, of the finest land, and with plenty of spring water, which, in the hands of a different people, would be a splendid property. The village of Curiejo is a farming community of about five hundred souls. The silver mines in the vicinity, also make considerable trade.

### BAYOREJA.

Northeast, and about ten leagues distant from the latter place, is a very handsome village, of about one thousand inhabitants. The place is tastefully built, and the country tolerably good farming country. A portion of the community are occupied in working its silver mines and gold placers. The principal drawback to the gold-digging is the distance of the mines from water.

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# THE MAYO AND FUERTE VALLEYS.

# THE
# MAYO AND FUERTE VALLEYS.

### TEPAHUI.

Sixteen leagues from the last-mentioned village, took me to Tepahui. This is an old town, of not many inhabitants—perhaps three hundred—situated on the Mayo river, and peopled by Mayos Indians.

Three leagues from here, is the hacienda of *Ogna Caliente*, "Hot Springs," situated on the southern bank of the river. It is one of the best houses in Sonora; grand, and hospitable too; as travellers, Americans especially, can testify. The grounds are planted with trees, whose deep shade furnishes coolness in the midst of summer. As a resort for visitors, this place, with its springs, might be made very valuable in different hands. The short distance from the city of Alamos gives it a very convenient location. It is also only one league from *Conicari*, on a bluff of the Mayo river, a village of four hundred inhabitants. A small creek makes a junction with the river at this village, whose bottom land is one extensive corn-field.

### TESPUSTETE.

From Agua Caliente to this place, is five leagues east. "Tespustete," signifies what in English would be called the "blossom of ores," a black, shining, heavy substance, indicating the presence of ores. This is a ranche owned by the Sonora capitalist and usurer, Don Pascuel Gomez, the richest man of Northern Mexico; and whose corpulency of body nearly equals his vast possessions. His weight is about three hundred pounds, the heaviest part of him being in the abdominal region. This lecherous old millionaire, with that impunity from natural and decent shame, which money grants a man, is actually going to marry one of the loveliest young girls of the Fuerte. It is said that he is always able to command a million dollars, besides his vast properties.

### ALAMOS.

From Tespustete, I went to the *Real of Alamos*, which derives its name from its beautiful alameda or park of cotton-wood trees. It is an inland town of some considerable trade, notwithstanding its distance from the coast. It has a fine plaza, a good academy, and some handsome commercial houses. The private residences are built in good taste; and the paved streets have sidewalks of beautifully cut stone. The lively trade here, is made by the exchange of silver from the neighboring mines. In the neighborhood is the remarkable mountain of the "Sierra de los Frailes," or "the mountain of the priests." It may be seen from a distance of one hundred and fifty miles, and looks from afar like the white steeples of a church. Nearer, however, it has the appearance which its name indicates, of the statues of two priests. One of the statues has been surmounted by a wooden cross, showing the religious feeling of the people.

The population of Alamos is five thousand; and it is known in all Sonora for the aristocratic feeling of its inhabitants. It is watered only by an inconsiderable creek on the south side of the town, on which are fine residences, orchards and corn-fields.

## HACIENDA OF SAN ANTONIO.

Three leagues east of Alamos, is the mining hacienda of *San Antonio*. The ore, which is quite extensively worked, is of silver, and the machinery of American manufacture. Three hundred hands, or often more, are employed on this hacienda. It is owned by Dr. José Maria Almada, a name that belongs to the most illustrious families of Alamos. His beautiful private residence adjoins the hacienda, which has also a sugar-farm, irrigated by water from the Alamos creek.

The gentlemanly owner of these possessions is a man of liberal principles, and of more energy than any other in this part of the country. He is very friendly to foreign enterprise, encouraging and protecting Americans in all instances. In his own undertakings he has been eminently successful. But the most remarkable fact concerning him, is his family, which consists of seventy-two children, all by two wives; the second of whom, and forty-two of his children, I had the pleasure of seeing. On their road to church, attended by their servants, they looked like the inhabitants of a young city during an hegira.

## COUNTRY SOUTHEAST OF ALAMOS.

From San Antonio to *Labor Grande*, is a distance of five leagues, without settlements. Three leagues farther on, brings us to the arroyo, or dry creek of *Cuchiac*. It is bordered with a thick growth of cypress, the wood of which is valuable for building purposes. *Labor Grande*, or "Large Farm," is an extensive stock and grain farm. The custom in this country is not to reckon by the acre in speaking of their planting, but by the *bushel*. At this ranche they plant twenty-five bushels of corn and three of beans. The residence is large, and neatly built. There are twenty-four large-sized, commodious rooms, surrounding a hollow square; besides a deep verandah around the whole, for the comfort of coolness.

Three leagues from here is the arroyo Sabina, or "Cypress creek," which takes its name from the abundance of this wood that borders it. The *Sabina ranche* is a stock farm, with some arable land.

Two leagues east of this, is the *Realito*, a small place of about fifty souls, and very little business. From this place I proceeded to *Bapoli*, near the summit of a very high mountain, a small place, where, by irrigation, they raise some patches of sugar-cane.

### THE CANON OF BANEYAGUA.

Three leagues more from here, took me to the "*Canoda* of *Baneyagua*." This is a place of much interest. It is situated on the north side of a tributary to the Fuerte river, of about twelve miles in length. This cañon of Baneyagua has been worked to a considerable extent in the time of the Spaniards; and it is my opinion that it is a very valuable placer. For a distance of twelve miles, the hillsides have been perforated in many places, and shafts sunk and drifted. Some of the works are recent; but the miners not being acquainted with the modes of getting out the water by pumps and flumes, have done all their washing in wooden bowls. The tediousness of this process could only be made to pay where the diggings were very rich. Having done what they could in this way, the mine is now abandoned; and its riches will probably lie under water until foreign enterprise has taken hold of it, when a fortune awaits the one who undertakes it. At the head of this cañon, drifting has been done to a considerable extent.

The soil is composed of a red clay and decomposed quartz. It is worked by an arrastra, constructed of a circular stone bed, twelve to fifteen feet in diameter, with a rim of stone on the outer edge of it. In the middle is a post, which supports a lever on a pivot. To this lever are attached two large stones, weighing together five hundred pounds. The dirt is brought here by mules, and when reduced to powder in the arrastra, the gold is separated by amalgamation with quicksilver. The stream furnishes an abundance of excellent cypress and cedar wood; but there are no saws or other implements to work it up.

### MOUNTAIN FASTNESSES OF THE FUERTE.

The mountain region of the Fuerte is so exceedingly rough and precipitous, that no wagon-road ever has been, or ever will be, made through it. All carriage is performed on mules, and a man is better off on foot than with an animal under him. The people of this country are what might be called a specific race. They are an admixture of Spanish and Indian blood, like all the Mexicans, but the proportion of Indian blood predominates. Living so remote from civilization, they have returned to man's natural estate, and assimilate to the probable condition of Adam in Eden. What we believe to be the necessaries of life, are quite unknown and unnecessary to them. Comfortable houses, clothing, beds, are unknown and undesired objects. Nature has furnished them with fruits of many descriptions, which admirably answer their wants; and the only kind of agriculture they know anything about, is the planting of a little maize, which they effect by making holes in the ground and covering them with the hand. The finest corn is often raised with only this amount of care and labor. They choose the very steepest hillsides, where an animal could not stand. Their manner of clearing the land they wish to use is as singular as their other habits. First they proceed to cut the thick and thorny underbrush with the Mexican knife, *macheta*, about two feet long, and three or four inches wide. (This instrument is the principal tool as well as weapon of the country.) Having cut up all the underwood in this way, they leave it to dry for about seventy days before the rainy season, which commences in June. They then set fire to it, and thus char the bodies of the trees, which are still left standing.

Nature has lavished upon them an abundance of frûit which more favored countries might envy. The "pitaya," which ripens in May, is a delicious fruit, of a blood-red meat. In the time of harvesting this fruit, the natives leave everything else to gather and eat pitaya, which is to them both bread and meat, and withal very wholesome. In June they have a kind of sweet bean, called the "guamanche," whose vine makes a beautiful shade around the houses, giving out a very sweet odor, and furnishing a pleasant article of food. Los "igualamos" are black berries with small seeds, which ripen in August and make a delicious preserve, or are an excellent dish cooked. The "igualos" is a yellow fruit, of the size of a pear, which is ripe in October, and is eaten raw or cooked. The "houpperas" is a small fruit resembling a black cherry, and very sweet, which grows very abundantly, on low bushes, and is gathered by the natives for winter use. "Papaches" is another fruit, cased in a ruffled, prickly bark, and when peeled is the size of a large apple. It is of a yellowish black color, sweet, and slightly bitter. When first eaten it is very disagreeable, but by use grows to be much relished. The woods are often black with the abundance of the papaches. They stand the winter frost, and are not fit to be eaten until March. The "iguera," or wild fig, grows here to extraordinary dimensions. It is a magnificent fruit, and the twisted roots run on the ground to a great distance. This fig yields once in June and again in November, the first crop being the largest. This fruit is considered very refreshing. The proprietors of this wild-fruit region look upon an American as the most singular of objects, as indeed I suppose they must upon any one not like themselves, their want of intercourse with the world rendering their stock of ideas extremely limited.

## MINES OF THE FUERTE.

From Baneyagua, east, to *Las Garobas* is three leagues. This is a small place of about one hundred and fifty souls. Gold and silver mining is done here to some extent.

Four leagues still farther east is the *Real del Rosario*, another mining place, and owned by Signor Don Bruno Esquessa. The silver, after being taken out, is ground in the arrastra and amalgamated with quicksilver. The mine is situated on the side of a mountain, on the north side of the hacienda, and the diggings are surface diggings, or, rather, are excavations. The annual revenue of this mine, in net profits, is seventy thousand dollars.

Between Del Rosario and *Chinipas*, about thirty leagues north, there is nothing of interest on the road except the pine timber. Chinipas is in the highest part of the mountainous country, and in the state of Chihuahua, the Sonora line being on the other side of Del Rosario. It is situated on the northwest prong of the Fuerte river, and is a small agricultural place of about six hundred inhabitants. A large amount of "panoche" is produced in this village, from the sugar-cane, manufactured in the simple manner of the country. There are also some gold placers in the vicinity, and a portion of the inhabitants are engaged in mining, or washing gold.

"*Palmarejo*" is a silver mine, distant about six leagues from Chinipas. It is worked by Don Miguel Uries, of Alamos. This mine is worked on a more extensive scale than any in this section of the country. There are twenty thousand ounces of silver taken out of it monthly. The ore is taken out by improved forcing machinery. Four stamps, of great action, are worked by water-power, which rarely fails in these mountains. The ore is not rich, but the great quantity taken out makes up for this. Had not improved machinery been introduced, the owner could not have realized yearly what he now makes monthly. After being ground, the ore is amalgamated, in the same way as in other great mines of Central Mexico. The roughness of the country does not admit of many labor-saving appliances. In this case the mine is three leagues from the hacienda, no place nearer being convenient, and all the ore has to be carried on pack animals, at a large expenditure for the labor.

## OVER THE SIERRA MADRE.

Not being able to give the correct distances over the mountains, I shall use the terms of the mountaineers in describing distances. From Chinipas to *Jesus Maria*, then, is five days' journey. The only thing of interest to the traveller over this monotonous road of mountain after mountain, is the desire and expectation of arriving at some settlement at the end of each day's journey. This we are generally able to do, as the "Tarumaria" Indians live in the valleys between the mountains. They are a peaceable, well-behaved tribe, who chiefly inhabit the central part of the mountain country, and raise some corn and fruit. Their orchards are well filled with a good variety of the latter. The mountains here are often called *Tarumaria*, from the Indians who inhabit it.

*Jesus Maria* is an ancient mining place of some notoriety, and bears traces of having been once the seat of considerable trade. The records, too, of the district of which it is the capital, give fabulous accounts of the quantities of silver taken out of its mines. These mines are still worked.

*Los Bajios*, at a distance of fifteen leagues, in a southerly direction, is a place where great quantities of all kinds of grains are raised. They find a ready market in the mines of the surrounding country. The population of Los Bajios is about five hundred souls. The country along the road to this place is well timbered, and the valleys, as before mentioned, inhabited by the Tarumaria Indians, who keep large flocks of goats and sheep, besides other stock. The whole country is remarkable for its mineral deposits, though it is unworked on account of the apathy of the Indians, who have not yet learned the value of riches.

### URIQUE.

From Los Bajios I turned westward, crossing back over the Sierra Madre, on its highest summits. Found nothing remarkable except the lofty character of the mountain range, and the forests of fine timber standing useless and waiting for the axe. On the fifth day I arrived at *Urique*, situated on the main stream of the Fuerte river. Urique is already, and constantly becoming more so, a centre of interest for the richest mines of the Sierra Madre. There are, all about it, mines of gold and silver, abandoned since the Spanish times, and going to ruin, either because the capital to work them is not in the country, or because they are under water, and no system of drainage and tunnelage is known among them, by which they can be reclaimed. However, two companies of foreigners, one American, have lately gone in there, and reopened two of the mines, and one of them has been a short time in operation. But there is room for twenty companies, with capital, to go to work in this vicinity. Energy and enterprise are a sort of "capital" as much needed as money, and necessary to accompany it.

Urique is much favored by nature with a most bounteous and healthy climate. Fruits of every description succeed well: grapes, granadas, aguacates, plums, figs, and apples, not to mention the tropical fruits, which prosper in its genial soil. Its population is four or five hundred souls, mostly "*Gambusinos*." The Gambusinos are miners without capital, who work wherever they can pick up a living. Whenever a mine is abandoned, they flock to it, and tear down pillars, or other works, in search of a little ore, often endangering the safety of the mine, and making it necessary to go to a great expense to put it again in working order. However, when they get regular work, they make very efficient hands, being active with the crowbar, and good judges of metal.

### COPPER ORES OF FUERTE VALLEY.

Keeping a westerly course down the Fuerte river, we come to "San José," an abandoned silver mine. A few people live here, doing a little mining, and also a little farming.

Six leagues north, again brings us to "Piedras Verde," which signifies green stone; and in fact the whole mountain is a mass of copper ores. This is an old copper mine, recently reopened. It must have been worked by the early Spaniards. Its present occupant and owner is Don Pedro Desormeau, a practical miner and smelter. He has sunk a shaft at the foot of the mountain, and discovered a vein of forty yards width. The ore is worked by the English process, that is, first roasted, and then smelted. The ore is a sulphate of copper, with antimonial copper pyrites, the first yielding forty per cent., and the latter sometimes sixty-five per cent.

Eight leagues further on, is the mine of "Guasaparas," where silver mining on a small scale is carried on, in the simplest conceivable manner. Southeast from here, is the mine of "Bahuerachi," a copper mine, leased and worked by J. B. Glecker & Co. This mine has, and still does hold out great prospects to its owners, who have expended some sixty thousand dollars on its improvements, in the last three years. The amount of ore taken out is two hundred cargoes per week—a cargo being three hundred pounds. The metal averages from twelve to twenty per cent. It has a great variety of ores, comprising all the ores of copper, which in the smelting, flux each other. Seventy furnaces, built of sand-stone, are in continual operation. Charcoal is used as fuel. A reverberatory furnace, on the Lyonaise plan, built of English fire-brick, is used for refining the metal, which issues from it in a state nearly malleable, and in beautiful slabs of golden color, of from one hundred and fifty to two hundred pounds weight. The produce of this mine in the year 1857, was above five thousand quintals of metallic copper. The house of the administrator is a well-built stone house, having, what is rare in this country, windows of glass, and chimneys. The surrounding country furnishes wood in abundance, pine as well as oak. About three hundred hands are employed here, all foreigners.

Two miles from here is the real of *Bahuerachi*, with a population of two hundred and fifty souls. There are gold placers in the vicinity of the *Chopotillo*, and one or two mines of argentiferous lead at short distances. Going down the arroya in an easterly direction, we pass the "San Francisco" mines, owned by Pancho Arrida, a gentleman known to his friends by his liberality, and generally, as a particular genius, who understands the chicanery of Mexican law.

Four leagues down the same creek, is "La Reformas," a copper mine, owned by the same gentleman. It is an inconsiderable settlement. On the right is the mountain of "San Nicolas," of some celebrity for its caves of saltpetre, and its quarry of red sand-stone. It furnishes ingredients for the manufacture of mining powder. *San Nicolas* is a small farming village on the bank of the Fuerte. The inhabitants, scarcely one hundred in number, devote a part of their time to washing gold out of the banks of the river. The gold procured here is very fine.

Following the bank of the river a distance of about four leagues, we come to a place well known to the natives, by the name of "Campo Santo," or Grave-yard. It is immediately upon the river-bank; and appears to be the ruins of what was once quite a settlement. There is a tradition of a pestilence having swept away the entire population, whence it obtained its name. There is a shaft in the side of the mountain here, showing where it has been worked for gold to a considerable extent, and the underground diggings can still be traced for several hundred yards. Numbers of the Mayos and Tarumaria Indians gain a living, as well as some Mexicans, by the simple bowl-washing, from these placers.

One league more brings us to the crossing of the river, where, on the south side, is the *San Thomas* farm. It is almost quite shut in between the hills which close around it, leaving only two gaps. It has a foreign owner. As good butter is made here, as the celebrated "Goshen" butter of New-York. It is a fine grazing farm, and has upon it, besides, a distillery for the manufacture of a liquor called *mascal*, of intoxicating powers. Tobacco is also raised, of an excellent quality, Some work is done in the neighborhood, in taking out lead and silver ores.

Three leagues south, is the *Mesquit Caida*, or "Fallen Mesquit" ranche. And four leagues southwest from here is *Tajadera*, a stock and grain raising village of three hundred inhabitants. Another four leagues brings us to the settlement called

## CHOIS.

This is the chief town of the district, situated in the valley of the stream of the same name, which empties itself into the Fuerte river. Its position is very beautiful, being on a fine plain, with a very pretty view. Here I saw a sign of civilization, which I had not found in my four years of rambling, viz., a wagon. It is my conviction that Chois is, in the future, to become a place of great importance. It is the natural outlet for all the mines of that country for several hundred miles, and this is one of the richest mineral districts of Mexico. Its situation at the base of the mountains, its easy access by good roads from the farms and ranches of the lower valley, and its facility for communication with the Gulf, must make it an important place for trade as well as industry. Its present population is about fifteen hundred; and its people and buildings show more of the characteristics of civilized living than any of the places which I had lately visited. The whole surrounding country is rich in gold placers, and even the spot on which Chois stands, furnishes gold for the washing. All the streams in the neighborhood show the color, on washing the loose soil of their banks. The town is about four miles from the junction of the stream with the Fuerte river. I travelled up the Chois a distance of four leagues to *Los Iguelas*, which derives its name from the fruit Iguelas, which grows here in the greatest abundance. There are a few *jacals*, or huts of Mayos Indians here; and I saw appearances of diggings, as well here, as along the road over which I had travelled. At Iguelas the stream makes a bend, enclosing a "mesa," or table-land of some twenty-five acres, which is perforated with shafts from fifteen to twenty feet in depth, where gold has been sought for. There is plenty of it, and the dirt all pays alike, but the gold is so fine that the natives cannot save it. If they could, they would make good wages even at bowl-washing, which is their only mode of getting the metal. With California improvements, I have no doubt a company could make these diggings profitable.

Continuing up the stream for one league, on the south side of the river, I struck the "arroya Sabina," or Cypress creek, which runs a course due north. Following it toward the south for four leagues, I came to a prong of the same stream, called Los Pillos. The name is derived from the fact that the rocky bed of the stream forms a natural reservoir of waters. This stream heads in an easterly direction.

toward a high mountain, of a north and south range. About a mile above the junction of the Pillos and Cypress, I was shown, by a Mayos Indian, a placer in the bed of a creek, where he had been digging for gold. His tools were a crow-bar of Brazil-wood and a horn spoon. With these he had taken the dust out of about two feet square, in one place, which contained gold to the amount of five dollars and sixty cents. It was in six small pieces, which I weighed. This Indian lived in a cave of the rocks close by. He was a runaway servant, in debt to his master, for which cause he was hiding.

## SINALOA.

I prospected for several miles toward the head of Pillos creek, and found that the dirt would pay from ten to twenty-five cents to the bucket. It was my intention to have worked in these diggings, but the rainy season compelled me to abandon the idea, and I left, with the intention, however, of returning after the rains. But, by the time these were over, I was far away on my wanderings. I returned to the Chois stream, and struck it at the junction of the Sabina; then followed the Chois up toward its head for two leagues, which brought me to a ranche, whose name I have forgotten, but a large stock farm, where some grains also were raised. Ten leagues beyond, on the same course, I came to *San Panteleon*, belonging to the Signors Ibarra del Fuerte. It is a sugar farm, which raises, besides, corn and stock. From here I turned south, and travelled fifteen leagues through a country without settlements or any population whatever.

### BAYEMENA.

This is a village of Mayos Indians, situated on the beautiful Bayemena creek. Its population is about six hundred souls. The occupation of the people is farming, raising sugar-cane and corn. In the creek are traces of old diggings, where gold has been taken out. The bottoms of the creek are covered with a fine growth of cedars. From here it is six leagues, southeast, to

### YUCORATI,

Which is a village, on a creek of the same name, in a very mountainous and rugged country. The population is a mixture of Indians and Mexicans, and numbers not more than three hundred, altogether. At this place are old Spanish diggings of much interest, the ruins of their works showing that here was once a large population of gold-seekers. The country adjacent to Yucorati is quite perforated with shafts and drifts, in all directions. The bed of the creek itself has been tried in every conceivable manner. Both natives and foreigners have put their hands to the effort to extract the gold, but without success, on account of the quicksands which prevent them getting to the ledge in which it is deposited. All who have experimented have the same opinion of the richness of the dirt.

### CASA VIEJA.

East of Yucorati, fifteen leagues, is Casa Vieja, or "Old House." There is an old ranche here, which appears to have been for the raising of stock and grain on an extensive scale, though now only a few families live on it. I here met an Indian of the tribe of "Onavas," who invited me to go on a visit to his tribe, living over a chain of mountains to the southeast. Accepting the invitation, I accompanied my Indian friend, and found his people living in a valley, with a beautiful stream of water, fine land, and plenty of cypress and cedar timber—altogether a charming region for farmers. These Indians seemed to be quite comfortable, having an abundance of corn, and pumpkins of a very sweet and mealy taste, besides vegetables and fruits, and some stock. They seemed to be unwilling to have their country prospected, and I was unable to satisfy my inquiries among them. I saw, however, rich specimens of copper and silver ore. I found, also, a copper mine that had been worked in the Spanish times, and on the banks of the streams numerous places where the soil had been prospected in the search for gold, and in some places shafts in ruins.

## GUADALUPE CALVO.

Leaving the neighborhood of the Onavas, I continued in a course a little south of east, and arrived, after five days of arduous travel, over a very rough country, at "Guadalupe Calvo." This mine is near the line of Sinaloa and Chihuahua, and furnishes both gold and silver. It was formerly a very rich mine, and was in "bonanga," or full bloom, about twenty years ago. An English company then worked it, who put up extensive machinery, and attracted to the mine a large population from all parts of the country. Produce was carried there from Sinaloa and Chihuahua, and its exports of gold and silver bars were at that time very great. A large capital was required to work it, and when the revolutions of the country had frightened capital away, it went down. It is still worked a little, but not with its former rich returns, and is waiting the time when money and energy shall have been induced to re-enter the country, when it will again become a centre of business to quite a population. It is situated in the most rugged portion of the Sierra Madre, where mountains on mountains are so piled up that not an ear of corn is raised.

## MORELOS.

Travelling north from this mine of Guadalupe Calvo, I found the country exceeding rough, but showing appearances of mineral wealth, yet meeting nothing of interest for three days; at the end of which time I came to Morelos, a mining village, having a population of about five hundred. Nearly all the inhabitants live by mining, and only a few patches of grain are raised.

### BATOPOLIS.

Keeping north for two days more, and traversing the same rough country, with no inhabitants except a few hamlets of Tarumaria Indians, I arrived, rather footsore, at Batopolis, in the state of Chihuahua. This town is the capital of the judicial district of Southwestern Chihuahua. It has a population of over one thousand, citizens and miners. It is here that all the lawsuits concerning mines are decided.

There are numerous mines in the vicinity, of both gold and silver. I saw pure virgin silver taken out of some of these placers, and many of these specimens were real "gems," that would grace any museum. The mines in this region are extensive enough to give employment to all the surplus capital in the United States. None of them appear to have been recently worked, and probably belonged to the time when this country was called New-Spain, and governed by viceroys. Their richness is self-evident, when Mexicans, with their proverbial awkwardness and slowness, are monthly sending mule-loads of silver to the mint at Chihuahua.

Batopolis is on the Fuerte river. Its mines are found on either side of the stream. In the vicinity are some small farms, and some stock. The mules of that region are remarkable for docility, endurance and sure-footedness. Both pine and oak are abundant, and the timber is of a good quality.

Turning south again, five leagues, I reached the *Durasno*, or Peach farm, situated on a "mesa," or small table-land. It is owned by Don Francisco Vinaigree, a large land and stock owner, and miner. The mine this gentleman is working is one of the richest in Battopolis, and it was from here that some of the finest specimens mentioned above, were brought.

From this ranche, I kept on the same course four leagues, to the *Mission of the Tarumarias*, on the Fuerte river. The Mission is owned by the clergy, and kept for the education of the Indians in the Catholic faith. There is quite a large village of Indians at the mission, who raise grain and fruit, and keep large herds of cattle, sheep, and goats.

Three leagues farther south, I came to *Realito*, a mining village of about two hundred people. The mines here are of silver. One league from the Realito is the famous "Mount Serat" mine, operated now by Dr. Don Juan Migloria. Its elevation on a high mountain makes it a very prominent object, a sort of sign-post in those mountains of mountains. Mount Serat has been extensively worked, and all around it, in the mountains, shafts have been sunk and drifts worked out. It is still worked on a small scale, but for want of means, as in so many cases, the operations are quite limited, and the owner is unable to get at the heart of the hills.

The Realito is filled with a transient population, of the worst description, being miners from other places, driven away for bad conduct; broken-down gamblers come here to make a raise, while criminals from every part of the country congregate here, because there are so many miners close together, where they can pick up an easy living by a little occasional work. Only two of the citizens pretend to any respectability; and, altogether, it is not just the sort of place for a man with money, or an honest man any way, to trust himself.

I should advise those who go there with honorable intentions, to go in parties large enough to insure their own safety; as the Apaches are not much more to be dreaded than this sort of human scum of the Realito. It would be a great providence if some pestilence could carry off these pests of good society.

I give here the names of some of the most prominent mines in this neighborhood: "Totos Santos," or "All Saints" mine, "San José," and "Sta. Catherina." I remained in this vicinity about three weeks. While here, I witnessed an instance of remarkable luck. A man from Morelos, who had lost all he had by drinking and gambling, and was in debt besides to the amount of five hundred dollars, came here. He had never worked a day in his life, but the fear of being made a peon of, for debt, made him go to work for the first time. He began at an old shaft that had not, probably, been worked for forty years, which I saw with my own eyes. For several days he was unsuccessful, but at the end of the eleventh day had taken out five hundred dollars in silver ore, of first-class metal. This was excellent luck. But, not knowing what to do with it, to secure it from the thieving, hungry hordes about him, and having no way of secreting it, he went to the justice, who promised to take care of it for him. In the settlement, however, the justice contrived to swindle him out of the largest portion of it. And *this* was Mexican honor. I do not know whether the man was encouraged by his *luck* to persevere; or discouraged by the *justice* he met, from further effort.

From the Realito, down the Fuerte river for two leagues, I travelled over a road of the most dangerous description. The mountains close right down to the river, so as to leave scarcely a foothold for animals, and the waters being high, I had to pass over smooth, slippery rocks, with the abrupt mountain wall on one side and the foaming river on the other. It is a formidable pass, and not a few animals are precipitated down its rocky side into the river.

At the end of the two leagues I came to some hot springs, close to the bank of the Fuerte. Another mile below is the mouth of a small creek called *Potrero,* where there are a few families living, and the bottom land is planted with a few patches of corn.

Following the river again, over the same kind of rugged road, I reached the arroya of Los Cueros, which is the dividing line between Sinaloa and Chihuahua. Turning up the creek to the Real of *Los Cueros*, or "village of hardships," I found the roughness of the country excuse for this translation, though the literal one is "The Hides." The small population is confined mostly to the banks of the creek. Ruins show that a large population once dwelt here, and worked extensively in the silver mines of this neighborhood. The leads of these mines are mostly small threads of silver, the threads running in all directions.

The way out of this Real is by climbing a high mountain, in a zigzag course, and following, when you get to the top, the high, narrow ridges, for three miles, in almost momentary danger of falling, on either side. The descent is about four miles to the banks of an arroya, along the windings of which is cut a path on the edge of the rocks, which gives the smallest possible space for a pack animal to pass. This arroya is called "De los Francescas," which is also the name of a mine upon its bank, said to have been once worked by a foreign company, probably French, as the name seems to signify. There are the remains of some decayed or ruined buildings, and traces of forcing works.

Passing from here, over a mountain as high and difficult to surmount as the one on the road from Los Cueros, and reaching the bottom, I found myself on another creek, the arroya de Castro. It is a beautiful stream of water, running southeast, and has a ranche for stock-raising at this place. A league below is a saltpetre cave, worked by the Signors Ibarra, of Fuerte.

Following the stream down, and crossing and recrossing with great difficulty, at the distance of another league I came to the ruins of a village, where there seemed, from the excavations, to have been gold-diggings covering quite an extent of country. A few Mayos Indians were packing dirt and washing it in their primitive fashion.

## THE OLD INDIAN OF SANTA RITA.

From this place I followed the stream still down, another two leagues, sometimes on the bank, sometimes in the bed of the stream, and sometimes on the bluffs, to *Santa Rita*. This name is a misnomer, and should have been

Botany Bay, as it is an entirely suitable place for state prisoners, there being hardly a way in and nearly none out. There is, however, a copper and silver mine whitening a mile of its rough sides. This mine has created some excitement in Sinaloa, and also in the United States, among some individuals. As to its richness, I can say nothing. It appeared to me like a great mass of greenish ore, of but little value.

I remained at Santa Rita four days, fearing the probable fate which would befall me if I tried to escape. During my stay I formed an acquaintance with an old Mayos Indian, who was probably eighty years of age. He spoke Spanish sufficiently well to converse understandingly, and informed me that he had lived in that place for more than sixty years, raising a large family there. I interrogated him as to his reasons for choosing such an out-of-the-way place of abode, so perfectly repulsive and God-forsaken. He replied that, "believing me to be a good man, he would confide to me his secret motive. Although very poor, and having a large family, he had, he said, a place to go to raise a little of the needful, when his circumstances required it. After a little talk, he proposed to me to go and look at his *bank*. I accompanied him a distance of three miles, over a way filled with obstructions, having to make the last three hundred yards by swinging ourselves on shrubs and anything within reach which would sustain our weight. On reaching the spot which he intended to show me, I saw the points of some quartz rocks and small leads of ore. Examining it, I found it to be gold, which in some places was quite visible. There had been some slender attempts at excavation, made no doubt by himself, as he told me that himself and wife and sons sometimes worked here to get a little gold. I confessed that, although his bank was not easily *broken*, I should much prefer taking my chances where there were no such deposits, to living here; whereupon we returned to Santa Rita. This unfortunate spot is not blest with sunshine until nine o'clock in the morning, and is again deprived of it at three in the afternoon. Neither has it a level place to walk, unless it be in the bed of the creek; all is steep mountain-sides.

## TRAITS OF THE FUERTE VALLEY.

Among the shrubs and plants of that section of country is the "Yerba de Flecha," a very poisonous plant, whose name signifies its ancient use of poisoning arrows. I have seen from my own experience that it is very deadly and quick. If known, it would become an article of commerce. There is, also, the "Asebadilla," for which I know no translation, but it is used in healing the cuts, bruises, or sores of animals, and as a purgative acts as effectually as calomel. From its abundance, it costs nothing, though a valuable medicine.

South from Santa Rita, four leagues, keeping to the southwest of the arroya de Castro, and one league from this stream, is the hacienda "de l'Esponjada," or "Spongy mountain." The mountain from which the hacienda takes its name, is composed of a loose, spongy dirt, which, when it rains, washes down in great quantities, obstructing the roads.

On the same mountain, at one league from the hacienda, is a mine newly opened, in which are found veins of gold, silver, and lead. This mine is in a remarkable place, the mouth of it being so high up the mountain that, for the last three hundred yards, no road for animals could possibly be made, and the ores have to be carried down on the backs of men. The shaft is sunk one hundred and fifty feet, and lies at an angle of forty-five degrees. While I was at the mine, one poor fellow was so unfortunate as to slip at the mouth of the mine, and was precipitated down the banks to the ravine below, and instantly killed.

Travelling south, and ascending the Esponjada mountain, about two leagues of very rough road brought me to its top. Here I pursued the same direction, along a sort of table-land, it being a fine country, beautifully timbered, and well watered. Farming might be followed here, as the soil seems pretty good for raising grains or fruits. From this elevated spot, I had, as I descended, a refreshing view of the several valleys in sight from this prominent stand-point. Laid out like a beautiful picture were the bottom-lands of the Fuerte, the Chois, and the Portreros, their waters seeming to glide like silver veins through the green valleys. No more did Fuerte, "the strong," rush headlong toward the gulf, but only stole peacefully along from winding to winding. I lingered on this height before descending, chary of losing the sight, so pleasant to me after my toilsome mountain scrambles. On my right, coursing southwest, is the Fuerte. On the left, the Chois and its various tributaries. Along the valley of the Chois, and following the same direction, is a chain of mountains; and where I see the faint smoke of industry, are the mines of "Plantanas" and "Masamique." Before me, and as far away as the eye can reach, is another range of hills, in which is situated the mine "Salusperde;" but it is between them and me that my eyes rest with most pleasure; for, after being so many days wearied with the sight of "Alp on Alp," and with ascending and descending, with nothing in view but pine woods and Indians, I felt new strength invigorate my frame, and new lightness enter my feet, at the sight of ranches and houses, here and there, and cornfields, patches of sugar-cane, groves of bananas, orchards of oranges, and all the tokens of a fruitful soil and prosperity. Nature has given of her abundance to these beautiful valleys.

### MASAMIQUE COPPER MINE.

Descending the valley about ten miles, I visited the Masamique copper mine. (Masamique is the Mayos word for deer.) This mine is under the superintendence of Mr. George Walker, a seaman by profession; but, notwithstanding the element to which he is native, his success here shows ingenuity and skill in his latter occupation of mining. The mine is owned by the Signors Ibarra Brothers, of Fuerte. The superintendent, by his frank good humor and courtesy, has conciliated the Mexicans, usually so prejudiced against Americans, and made himself thoroughly popular. His furnaces are built on the German plan, and he has introduced some improvements in them. He employs over one hundred workmen. I take great pleasure in commending a man who has been able to make much out of little, and shown himself a good manager of mines as well as a gentleman.

### LAS PLANTANAS AND OTHER MINES.

Two leagues from Masamique is the copper mine of "Las Plantanas," or "The Bananas." This mine is owned by the same company, and under the same superintendent as the other.

Turning west from here, I came to the

Queleli, or Vulture creek. This creek takes its rise in the Masamique mountain, and running in a southwest direction, empties into the Fuerte river. This is a resort for the "appurradors," or all those who are "hard up," as it is famous for producing a very "coarse" gold, of fine quality. The country is productive and healthy, and the people lazy to an unusual degree even in Mexico. They work only when their necessities compel them to it. One thing, however, they do accomplish in a very creditable manner—they raise the largest average families that I have ever seen. This occasions many marriages and baptisms. A baptism costs one dollar and fifty cents, and a marriage from twelve dollars to two hundred; so that some money must be had for these occasions. But cash is an article rather scarce among them, though it is clearly their own fault. The "Queleli," however, is their resource when money has to be raised, and the priests have good reason to praise this stream, which never fails to pay to the demanding *batea* the amount required for their fees, and has for years supplied them with so much ready money.

This creek has been worked to a considerable extent, and there are yet some good diggings remaining, especially if machinery could be brought to bear upon them, handled by some little enterprise.

### FARMING LANDS.

From Queleli I proceeded to *Chois*, passing by the *Tajadera*, a place of considerable stock-raising and some farming. The *Ranchito* is another small farming place, only one league distant from Chois.

From Chois I took a southwest course, for seven leagues, to *Bacca*, passing on this road various stock farms, among which were the *Bajossa* and the *Adobes*. Sugar-cane and corn are also raised at the latter. The produce of these farms finds a ready market at the mines. The Adobes is only three leagues from Bacca, which place is a Mayos Indian village, on the Fuerte river, of more than two thousand inhabitants. Their occupation is farming, which they prosecute in very good style, and raise some fine stock.

Going south from Bacca, five leagues, down the river, I came to the *Pueblo of Torre*, another Indian village — "Torre" signifying "bull," as "Bacca" does "cow." This is a stirring village of three or four thousand souls, and the portion of country surrounding it is a garden of fertility. The valley is about twelve miles in length and four in average width. It is nearly all cultivated to a very high degree, and produces bountifully. The village is situate on an eminence in the centre of the valley, and affords a delightful view of the several miles of cultivation surrounding it—a rather unusual sight in this country.

Three leagues southeast of Torre is the *Sienega*, or "Marsh land" ranche. This is a fine tract of land, under a high state of improvement, producing large crops of grain. There are over three thousand head of stock on this farm, and other things in proportion.

Keeping down the river for a little distance, we come to the large farming establishment of *Pajarro*, or "The Bird," belonging to the Signors Ibarra del Fuerte, and celebrated for its beans.

### FUERTE.

Travelling five leagues from here, and through a farming country of some interest, we find ourselves at the city of Fuerte, a place of much promise. It is situate on the river, where the valley opens out into a broader expanse of fertile country, and is on the route to *Culiacan* and *Alamo*, being seventy leagues from the latter, and eighty-two from the former place. It is only seventy-five miles from the Gulf, where some shipping is done "*a la Bacca.*" Fuerte is the place of trade for all the surrounding country, supplying with merchandise the mines in the vicinity. Its trade would be considerably increased if there were a few more business men to manage affairs. The city of Fuerte furnishes a contrast to many Mexican towns, in the fact that it is constantly increasing in size and population, its present number of inhabitants being about five thousand. Some of its buildings are very handsomely constructed. It has a fine church, a plaza, and one or two blocks of houses, which are quite in a modern style.

Should the country ever become open to trade, there will be easy access by the river, which is perfectly navigable to this place, and makes one of its important features. The commerce of Fuerte must be doubled whenever steam navigation can be introduced upon the river. The present road from this city to the port is through a well-settled strip of country, and communication is made easy by a good carriage-way.

### THE COUNTRY SOUTH OF FUERTE.

Taking a southerly direction from the valley of the Fuerte, at the end of the first league I found a stock ranche, and at the distance of three leagues more, another, whose name I forget, but it makes some pretension to raising corn and beans, as well as stock, and is situate in the bed of a dry creek.

From this ranche to the village of *Montoya* is seven leagues, south. Montoya is on a pretty, small stream, and has a population of three hundred, scattered along the bottom-land for three miles. They raise good grain, and have fine stock. The country around is good for grazing, and there is some mesquit timber, but it is generally destitute of water.

Continuing in the same direction for four leagues, I found the country pretty level for that distance; after which I emerged from the pass of a narrow chain of mountains (the pass is called the "pass of los muertos," or robbers), upon a stony road, which took me, after three leagues more, to the "Igura" camping-ground, under a large fig tree's shade, where there are two small streams of water. The country about this spot is very hilly, and thickly covered with worthless timber. I found plenty of dew in this place, but the grazing was indifferent.

Still going south, down the hills, I came, after eight leagues of uninteresting travel, to "*La Tajadera*," a small ranche, where farming as well as stock-raising was carried on. Tajadera signifies that it is a *narrow* strip of land where it is situate, it being on a small creek named "Los Estrellas," or "water in pools," where the bottoms are small or narrow. This creek has some gold-diggings in several places. The population of Tajadera is seventy-five souls.

I followed the bottom of "Los Estrellas" for about three leagues, and found heavy timber all along it, and plenty of game—deer and rabbit. The land would be excellent for cultivation if it were cleared. Leaving the bottom, I kept on for seven leagues more, over a mountainous country, with no openings in the timber except the road, and emerged at last upon the edge of a clearing, where stood the town of "*Ocorono*," on the same creek of Los Estrellas. Ocorono is an infant Cincinnati, being the place where hogs are raised, slaughtered, and packed, for the mining regions. I have seen better places than this; but it is nevertheless very favorable for farming, on account of the quality of the soil.

### THE TOWN OF SINALOA.

Getting started again, I found, at the end of two leagues, a ranche, on a branch of the same creek, where considerable stock and a little grain were raised. Seventy leagues from here, of very dreary travel, and affording nothing remarkable to the view, unless it was the great number of rabbits in the woods, brought me to *Sinaloa*, on the Sinaloa river. This is a town of perhaps one thousand inhabitants, and looks like an old place, with an old church tower of, it may be, the time of the Spaniards. There is very little trade here, except in corn and cattle, both of which are abundant enough.

# THE VALLEY OF THE SINALOA.

# THE VALLEY OF THE SINALOA.

This valley is the garden of the state; and I have seen but few valleys in Northern Mexico to equal it in productiveness. Corn sells for next to nothing, and the pumpkins raised with it are the sweetest I ever tasted. A good many hogs are raised and fattened; also many asses, and mules, and horses, are furnished to buyers at very low prices. The products of the country, for the present, are ahead of its needful consumption.

The mouth of the Sinaloa river is widened into a bay called the Bay of Narachista, and is a small port, of little importance, at a distance of sixteen leagues from the town of Sinaloa. Only small vessels can get into the harbor of Narachista, its difficulty of access being occasioned by the numerous islands and rocks in its waters. Its trade is in hides, corn, panoche, and some timber, which is rafted down the Sinaloa, for the Mazatlan trade.

From Sinaloa city I went up the valley,

riding for nine leagues amid waving cornfields, four or five miles in breadth. In the centre of these immense fields were the farm-houses, surrounded by little patches of beans, pumpkins, and chile.

After getting through the cornfields, I entered the timber to the north, the river being on my left. After two leagues of travel, I came to a small creek where I found some water, and a little farther on a place called *Milpas*, where I stopped for the night. It is half hacienda, half ranche, raising considerable sugar-cane and beans, and plenty of stock.

The next day I reached the *Pueblo de Uéro*, or "town of the fair-skinned," a Mayos Indian settlement of three hundred inhabitants. As in most cases, these Indians are farmers; but they also do some gold-washing on the banks of the Sinaloa, which I here again retouched.

Two leagues beyond is the copper mine of "Lajos," or "rocks piled on rocks." This mine is worked by an English company, who employ about one hundred hands.

### TREES AND PLANTS OF THE VALLEY.

A league from this mine is an old "milpas," or cornfield, called *Chapotilla*. Chapote is the name of a very succulent and refreshing fruit resembling pears, and grows in all the valley at the foot of the mountains. Here, too, is a tree which I called the "flower of the forest," but which bears the name of "palo santa," or "holy tree." Its bark, which is smooth and white, is a remedy for poison, and its branches are completely covered with white flowers, resembling lilacs. It makes a very striking object in a landscape, its height elevating it above the surrounding forest. It is common to all Sinaloa, but grows most abundantly between the Sinaloa and Culiacan rivers. The "mapo" is another flowering tree of great beauty, and is valuable for its wood, which grows tall and straight, and is of a very fine grain, suitable for manufacturing purposes. The "manton" is a fine wood, and excellent for charcoal. It has a small purple blossom. The "tepehuaca" is a low, heavy, branchy tree, resembling in its growth the live oak. It is used in making "los bollies" for "los molinos de cana de agucar," or for the rollers of sugar-cane mills.

These rollers stand in a frame, three in each, the middle one being the highest. There is a lever on the head of the centre one for a span of mules to work. These rollers are provided with teeth, which receive the motion from the centre one, and the cane thrust between them is crushed.

The tepehuaca is furnished with a beautiful flower, which grows a bean. The bark is also, when infused, a powerful emetic, and it should only be used in extreme cases. A piece of the wood steeped in drinking water is used for ague and fever.

The "pochotes," or cotton tree, has a soft wood, with a thorny bark, resembling the prickly ash. It bears a small flower, of a cream red, which produces a cocoon that, when ripe, opens on the tree, and yields a ball of the finest cotton. It is used for making pillows, and for lamp-wicking, candle-wicking, &c. "Palo nesca" is a tall tree with a green bark. The wood is used for making cogs, or anything which requires hardness. The Indians call it "palo piojo," or lice-wood, using an infusion of the leaves to cleanse their heads of troublesome tenantry. It is a fine tonic. The "gum copal" is a low tree, with an inner bark, reddish and gummy, which furnishes an ingredient for making varnish. All these varieties of trees are common to Sinaloa. There is besides, the "palo fierro," or iron wood, a species of lignum vitæ.

The *Chapotillo* is an abandoned farm, and is situate on a bend of the river, shut in between high hills. It is also an old digging of some celebrity. I went over a square mile of land where the soil had been turned upside down, and thoroughly prospected. I washed several pans, and always found the color, but only two specks of coarse gold in the whole of them. I did not get to the ledge. Water is convenient and provisions plenty; also, wood and timber.

## GOLD PLACERS.

Two leagues from here is *Baconbirito*, at the junction of one of the tributaries of the Sinaloa river. Three creeks come together at this place, whitening two hundred yards of bank with placers. Baconbirito is to the Sinaloa valley what Chois is to the Fuerte valley. Its old, dilapidated church shows signs of better days; and it is, to my belief, a place of future importance. The soil on which it stands is full of gold, and I have washed it out of the dirt in the yards of the houses. A hundred yards from the village is a "mesa," or table-land. It is formed by a horse-shoe bend of the river; and, on the southern side, another creek runs into the river, making it almost an island. It is, perhaps, two by five miles in extent, and partly planted with corn; but the interest of the mesa is that it has been worked for gold, and the whole elevation, which is one hundred and twenty feet at low water, would pay for washing out. The gold is coarse, and pays eighteen dollars to the ounce. I counted more than two hundred shafts sunk, all of them so old that trees and shrubs have grown on the dirt excavated. The paying dirt is in layers or strata. The oldest inhabitants tell me that gold has been taken out in large quantities, but that the ledge was never reached, on account of water in the shafts. Water could easily be brought to bear on the whole extent of ground, and the abundance of timber and provisions makes it a good location for miners. I would counsel them not to come without saws, as they are an article not to be had for the money. There are, however, tinsmiths and blacksmiths in *Baconbirito*. Not only the mesa, but the whole bottom, far and near, has been prospected for gold, and has yielded very well. Some of the natives continue to work, with the pan and batea, and make on an average seventy-five cents per day, which, in this country of cheap living, they consider good wages.

The upper river furnishes abundance of pine and oak timber, and there are some abandoned silver mines in the vicinity. Many of the Mayos Indians have a better knowledge of the resources of the country than the Mexicans, and are more favorably disposed toward foreigners.

I started, on my return to Sinaloa, on the north side of the river, stopping three days at the new settlement of *Buena Vista*. It is situated on a high bluff overlooking the river and the valley for a distance of five leagues. The sight is one of rich fertility, seldom equalled, and not excelled in any part of that country.

Leaving Sinaloa, I kept on south once more, to *Culiacan*, distant forty-eight leagues. After leaving Sinaloa the country is very uninviting, for three leagues, to the *Hacienda de los Sapos*, or "Bullfrog Hacienda." At this farm was a fine *manada*, or droves of mules and horses. The water is supplied by a spring.

Five leagues on my road I came to a deserted ranche, on a small creek flowing north, and very heavy timbered—the timber being full of thorny underbrush. The ground, too, was exceedingly rugged and stony. Grass and water were very scarce. Following up a small creek, southwest, I came to a high table-land. Three leagues then brought me to the *Coyote*, or "Wolf ranche," a poor, miserable farm, but with a fine *manada* of horses. Water is kept in a "represso," or reservoir, a large square pond, banked about with the excavated dirt, and surrounded moreover by a wall of stone masonry, with a gate. Travellers must pay their "medio," or six cents a day, for having their animals watered here. In some places the rates are much higher. Southeast of this place, I came to the *Sienega*, or marsh farm, and also to another stock farm with a few inhabitants. Two leagues away is the ranche of *Agua Caliente*, or "Hot Springs." The springs fill a large lake or marsh, where wild geese abound as well as a most excellently flavored fish. Drinking water is bad, and the grass thin and poor. But little corn is raised at this ranche. Population about one hundred.

### MOCORITO AND ITS VALLEY.

Continuing south from here, through timber and thick underbrush, for five leagues, I came to the *Pueblo de Mocorito*, or " pretty stream." It is a lively, thriving place, of some seven hundred inhabitants. The creek has a kind of port where coasting flat-boats arrive, and carry away produce. There are a good many stores, and an old church whose tower is seen from a great distance, being remarkable for its height. The creek, as its name implies, is a most picturesque small water-course, which empties itself into the gulf. Its banks are planted with grain crops to a great distance, especially toward the northeast, and its bottom-land is seven or eight miles wide. Some of the hills in the vicinity furnish gold fields, but they are three miles from water.

I travelled up this river about three miles, in an easterly direction, then left the bottoms and struck into the woods, which were of the beautiful flowering tree " palo santa." It was like being in an enchanted land. Not long after, I reached a small farm, where I was invited to partake of an iguana roasted in the ashes. The monster looked very disgusting, but curiosity and hunger, sharpened by a morning's ride, tempted me to partake. This animal is a species of overgrown lizard, from the size of a gray squirrel to that of a young alligator, whose legs it has, four in number, and made to climb trees, at whose tops they build round houses of mud and sticks. They live on wild fruit and the bark of trees. They are perfectly harmless, and though very unprepossessing in appearance, have a good flavored meat.

Four leagues from this farm, I came to the *Iguerita*, or "small fig-tree." It is quite a pueblo, or rather village; and all the country about is in a fine state of cultivation. It is a country of low hills, or rolling land. I saw many desirable "sitios"—a *sitio* is a square league of land, the usual size of a farm—with prominent places for building upon them. This village is a good market in which to buy horses, mules, or asses.

*Iguera* is another village, four leagues to the west, and of the same character. Leaving Iguerita, I went southeast, until I came to the ranche of *Poma.* This is the name of a tall, slim tree, whose branches are covered with leaves, of which animals are very fond.

They fatten upon them as well as upon corn This *Poma* is a very fine farm. The *palmas* are very abundant here, their leaves covering the ground for leagues. The leaves are in common use for covering houses, making a light and convenient roofing. The round boles of the tree are used in building, and are invaluable for wharfing or piling. They are the best timber to put into mines, as they stand longest without rotting. There is a small species, called "palma de sierra," or mountain palm.

Four leagues south of the Poma is the village of *Macoro*, of about four hundred inhabitants. The people are farmers and stock-raisers. This is where the road forks going to Mocorito. The road which I have been describing is the eastern, passing close up the hills. The western road traverses the same kind of farming country, but better watered than is usual for this part of Mexico. *La Palma* is the only village of any note on that route.

From Mocoro, I crossed the small arroya which passes to the west, and travelled for two leagues over a very fine country, unsettled, but suitable for farming. The road takes a southwestern direction to go through a range of hills, cutting it at right angles. The first stopping-place is *El Horcado*, or "The Hanged." There are signs of an old settlement here, and a gallows is standing, where some robber has been punished for his misdeeds. It is at the very opening of the pass, and it might remind one that even in Mexico there is still some justice. There is a stretch of twelve leagues before you come to this pass, which is called a cañon. It has lately acquired some celebrity from the battle fought there for the supremacy of Sonora and Sinaloa, between the troops of Gandara and Pesquiera. General Borunda, who commanded for Gandara, was lying in wait in the narrow road, which did not give him any chance to use his artillery and cavalry. General J. M. Morales, commonly called the "cachoro," or "young pup," who was posted behind the hills, opened a brisk fire with his small artillery, and then charging Gandara's men, put them to flight in confusion, and completely routed them. General Borunda was killed, and with him died the hopes of Gandara. I arrived at the *Noria* (which means "well"), where I again had to pay for water.

Seven leagues farther on is the *Majole*, or

*Mokole*, on the river of the same name. This Mokole creek empties into the Culiacan river, toward which I proceeded, following the bank of the river, studded with farm-houses and fields under high cultivation. Bananas and peaches grew in great abundance along my road; also the large fig-trees in the bottoms. I arrived on the bank of the Culiacan river, which I forthwith crossed, and dismounted at a comfortable mansion, where I was glad to take a rest before thinking of examining it.

### CULIACAN CITY.

Culiacan is the largest inland town of either Sinaloa or Sonora, having six thousand inhabitants. Mazatlan is not much larger, though the largest of the seaports. It has some manufactories of cotton stuffs, under the protection of the Vega family, the richest and most influential family of Culiacan. The Vegas have for years played the role of Gandara, and have kept the government of Sinaloa in their hands; nor have they ever hesitated to plunge the state in wars to retain their power. They have the ownership of some of the richest silver mines in Northern Mexico, besides cattle, caballada, and large landed estates.

Culiacon has a more city-like appearance than any town before mentioned. Its streets are laid at right angles with each other, and the plaza is handsomely shaded with fine trees, making it a delightful promenade. The "Meson" is a comfortable place for travellers, with good stabling for animals, good rooms, and meals served either at the public table or in your private apartment, for reasonable prices. There is also a restaurant, kept by a Frenchman, where those who have dainty palates may find something to their taste. The Culiacaneros have a club, after the fashion of an American town.

The mint buildings are not the least interesting objects to a stranger, for in them are coined all the produce of the mines of Sinaloa and Sonora. It is a fine and efficient mint, and was put into its present condition by English artists. American gold is here taken at par, not suffering the usual high per cent. of this part of Mexico. Several hundred foreigners are engaged in business in this city, chiefly French, English, and Spanish. Culiacan owes its present state of civilization to the influence

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of its few foreign residents, who have engaged in its affairs for fifteen or twenty years, as well as to the immense wealth poured into it from the rich silver mines of the country, far and near. *Barras* of gold and silver come to be coined from Guadalupe de los Reyes, from the mineral country around San Ignacio and Casala, from the great mines of Guadalupe Calvo, from the mines of Baconbirito, from the region of the Fuerte valley, from Alamos, and from all Sonora. This was formerly the nearest place of coinage for Chihuahua and Durango, the only other mint being on the other side of the Sierra Madre, and their passes have become celebrated for the robberies committed in them. Besides these, the Comanche Indians had to be encountered. This combination of circumstances forced all the bullion into the mint of Culiacan; but, more recently, a branch mint has been established at Alamos, where it was long ago very much needed.

The country around Culiacan is level, and can be irrigated easily for a considerable distance. The water of the river is abundant, and the bank very low; besides which, the country is not cut up by many streams coming from the mountains. Few places are better situated for the arts and manufactures. An extensive agricultural region insures cheapness of raw material, and the soil is well adapted to grow cotton, sugar-cane, and rice, as well as other farming products. The present governor of Sinaloa, Don Placido Vega, is very friendly to foreigners, and anxious to promote immigration and settlement, and to engraft their civilization upon the people of the country, as well as to secure their capital and commerce. Nothing stands in the way of enlightening the present race of Mexicans except their own indolence, and some prejudice, for they are quite an inoffensive sort of people, and well disposed toward humanity in general.

## CULIACAN VALLEY.

Following the river fifteen leagues west, I reached the port of *Altata.* It is on the gulf, and is the outlet for the trade of Culiacan and the surrounding mines. Immense are the sums of money that for the last twenty years have been shipped from this little port. It is frequented by coasting boats, and large vessels are lying at anchor a short distance away. It might be here remarked that much of the silver which ought to be exported at this place is smuggled from some other place not far off along the coast.

Enclosed between the gulf and the river is a ranche of twenty leagues square, owned by an enterprising Scotchman by the name of Quentin Douglas. A large portion of it is for grain-raising, being under good cultivation. There is also a mescal distillery on the place, and the owner does some exporting in dye-woods.

At a distance of twenty-five or thirty leagues from Culiacan, on the road to Guadalupe Calvo, is another silver mine, called the "Quebrada Onda," or the "deep ravine." It is a second-class mine, but is paying very well. It had recently been plundered and sacked by a band of robbers, who committed great ravages, and was just recovering from its ruined condition.

It is about eighty-two leagues, southwest, from Culiacan to Mazatlan, the great outlet for all Sinaloa and Durango. We must, however, turn our attention to the silver mines in this section, which are quite worthy of notice.

Travelling southeast from Culiacan for some seven or eight leagues of pretty level country, perfectly well watered, I came to the Los Vegas river, a fine stream of water that I crossed twice, as it makes an island at this place. This is a fine farming country, "los vegas" signifying a plain well supplied with water, or a ground fit for planting. On the top of a low hill, overlooking the Vega, is the residence. From Los Vegas I proceeded to *Los Plantanas*, seven leagues southeast. After travelling four leagues more, I went through a pass in a chain of hills, and emerging from this, found myself at the hacienda *De los Vegas.* The residence is a large, plain building, and unsightly as uncommon in this land of abundant timber. The farm is a fine one, having large quantities of stock to pasture, and fine caballadas of horses and mules—this being a mule-raising place. It is the property of Don Antonio Vega, who is as nearly king in this country as he could be without the title.

Leaving this hacienda, the country begins to be hilly again, where the road enters the bottom of a creek, which it follows for ten leagues through a very ugly pass, both for the badness of the road, and the opportunity it affords of harboring robbers between its rocky walls, and in its narrow gorges. It is called "Bichi" pass, or "the barren spot;" though the word is by no means good Spanish, but rather a vulgar term, which sometimes means the female dog of the Chihuahua breed. At the end of the pass is a small settlement of the same name. From this place southeast, over a small range of hills running from northeast to southwest, is a small water-course, and some farms. Keeping up this creek which is dry, the water being only found in places far apart, I came to Casa Nueva, or "new house," a small village on a bluff of the creek, of about two hundred inhabitants.

## COSOLA.

Leaving the creek and going to the east through a hilly country, ten leagues brought me to Cosola, a town in the midst of a banana plantation. Seven or eight miles away I could see the town, or rather a green spot, for, buried as the houses were, under the shade of bananas and orange-trees, not one of them was distinguishable. As I approached more nearly, I was quite as much prevented from finding the town by the same kind of trees which line the road for a long distance; and it was not until actually in the midst of the plaza that I discovered the town. This valley city is a beautiful place, and the inhabitants might pride themselves on its picturesqueness, which must be quite equal to the villages of the Alps. Behind it, and lowering down upon its softer loveliness, is the stern majesty of the Sierra Madre, making an imposing amphitheatre. Large crops are raised in this vicinity; and some valuable silver mines give employment to a swarm of miners. The banks of the creek have been at different periods washed for gold, and have yielded handsomely.

At a place eight leagues down the river is the hacienda of *Santa Gertrudis*, an old building where ore from a neighboring mine used to be ground up and amalgamated. The mine is now under water, and long abandoned. All the small rises of ground in the vicinity have been prospected for gold, and yielded profitably. Coarse gold of the finest quality is found here convenient to water, which is unfailing. Provisions and timber are also in abundance. Plank or boards can be had here for less than ten cents a foot.

From Cosola to *Guadalupe de los Reyes* is ten leagues. After the first two leagues going down the Cosola stream, I began to enter on a very strong and hilly road, very worrying to the feet of the mules. After crossing some low ranges of hills, I came to the hacienda *De los Naranjos*, or "Ranche of Oranges," a very pretty farm in a secluded nook. Crossing a high hill toward the south, I came upon the *Rio de la Habas*, two leagues from Naranjos. This is a hacienda hidden in among the closely-huddled hills towering loftily over it. It is a dependency of Guadalupe de los Reyes. There are some very good buildings here for the precipitation of gold and silver ores. Twenty soldiers are stationed here for the protection of both Habas and Guadalupe. The ore is brought on the backs of mules six miles from the latter mine, to be crushed with a set of heavy stamps moved by water-power. The water is very plentiful for three quarters of a year. The *modus operandi* is just the same at this place as at the Real of Guadalupe de los Reyes, or "Town of Guadalupe of the Kings."

## THE MINE OF GUADALUPE.

The Guadalupe mine is the richest mine now in operation, either in Sinaloa, Sonora, Durango, or Chihuahua. The treasure taken out of it during the thirty years since it was opened is absolutely incredible. It was first worked by the Yriarte family of Cosola, and with the products of it the family name was made the first in Sinaloa. But at the death of the old Yriarte, the mine fell into the hands of his sons, who did not give it the attention it required, and its produce consequently fell off. Gambling, great carelessness of affairs, and reckless expenditures, brought their credit so low that, to satisfy their creditors, the mine was leased to the firm of Don Antonio Vega, of Culiacan, for seventy years, on condition of its paying the debt of three hundred thousand dollars, and the sum of twenty thousand dollars annually to the remaining members of the Yriarte family. Under the management of the Vega, the mine has for ten years had a run of great prosperity. The management has been intrusted altogether to foreign skill. A steam-engine was placed in it, under the care of a foreign engineer, who soon was able to "desaqua" the mine, or get it dry. The administrador is a small sort of king, the mining statutes making him judge in all cases of last resort. His pay is seven thousand five hundred dollars a year. There is below him a director of the mines, or chief miner, with a pay of three thousand dollars. The present incumbent is a very talented German, Baron Leon de Worrinjer. His plan of the mine is a masterpiece of practical mining. Under his orders is the "miner," with twenty dollars per week, whose business it is to issue contracts for the work, and regulate the price of labor. Besides, there is the "under miner," who is constantly under ground, and gets fifteen dollars per week. Then comes the "rajador," or time-keeper, who has eighteen dollars per week. Then the "captain de patio," who sees that the ore is properly broken for the stamps, and weighs it after separating it into first, second, and third classes, and whose wages are ten dollars per week. The engineer has thirty-eight dollars a week; and the book-keeper three thousand dollars a year.

The mine employs four hundred miners inside, working day and night, each making from five to fifteen dollars per week. The works inside are very extensive, running some two miles in a straight line. It is a two-days' task to explore it. There are a set of men whose business it is to keep the galleries and shafts timbered up. A gang of twenty is employed breaking ore in the big yard outside. They are called "quebradores." There are some fifty "tenateros," boys and men, who earn from thirty to seventy-five cents a day carrying the ore from the mine to the big yard. They use a "turroa," or bag of raw hide, narrower at the bottom than top, and which they carry on the back with a strap passed round the forehead. These tenateros require strong nerves and supple bodies, mounting and descending the ladders, which are only straight poles with notches cut in the side. They work naked, except a piece of raw hide fastened on the sole of the foot with a string round the ankle.

The crushing and precipitation of the ore require the labor of about one hundred and fifty men. The stamps are powerful, and are urged by water. When the ore is pulverized to a fine, impalpable dust, it goes into the patio, where a due admixture of salt and quicksilver is put in with it, and it is left to simmer in a large basin built of masonry and containing water. When it is taken out it is of the consistency of mush. It is then laid on a "built" floor, and five or six mules set to tramping it with their feet. This tramping is carried on for some days, until the mud has the consistency wanted, when it is washed, and goes to the usual retort process for separating the quicksilver. It is then pressed into bars and stamped. Forty thousand dollars' worth of these bars take their monthly road to Culiacan, escorted by twenty soldiers, commanded by a foreign officer. The soldiers are on foot, and travel the distance of forty-eight leagues in two days. They carry nothing but a gun and cartridge-box, and, for provisions, a little panole. Their clothing is a shirt and pair of drawers, and a pair of "guaraches," or raw-hide soles, on their feet. At night, while the mules eat, they stretch themselves on the ground. Only the best of mules can keep up with them on the road; but when they get to Culiacan they make gambling and debauchery pay for hard service.

The administradors are, by the laws on mining, made tyrants; but the powers with which they are vested are generally used mildly, especially by the foreign officers. They have the right to say who shall remain or carry on business within the jurisdiction of the hacienda, to eject any obnoxious persons, to use force to make the natives work, or to put a refractory workman into the "barra." The barra is a Mexican institution, and consists of a long bar of iron fastened to a heavy post of timber. The prisoner has a ring around his ankle, which ring is provided with two holes into which the bar is passed. The bar is then fastened with a padlock, and is so close to the ground that the prisoner is forced to lie down. Some of the barras can confine fifteen or twenty men at once. Another mode of punishment is the "lepa," which is a piece of timber with iron fastenings that hold the legs and head in such a position that they cannot be moved. When it is determined to make the prisoner work, he is turned loose with a chain on one leg, to which is fastened a log which can be dragged about. Hard cases are sent to work in the mine, in the most dangerous and damp places. All the mines have good strong doors, with bolts and locks, and are guarded by watchmen. The miners are searched when they come out for fear of their concealing some rich and choice specimens; but they have learned such cunning that they are rarely caught.

Nothing whatever is cultivated on the hacienda of Guadalupe except a patch of bananas. Two miles above here the Mexicans raise some corn on the hillsides in the rainy season; yet these hills are so steep a goat could hardly stand; but that saves the necessity of fences. Selecting the steepest places for the above reason, the Mexican clears off the brush, and taking a barra makes holes at proper distances in the soil, drops in the seed, covers it over, and in about one hundred and thirty days has a crop of corn.

Climbing the hill on which is the mine, two miles of a sharp ascent brings one to the *Molino*, where all the wood for the steam-engine is cut. It is, as its name implies, an old mill where sugar cane used to be raised and converted into sugar. There is a good spring of water, and here are raised some good crops of corn and some "Goyares de Castile," a fruit which very much resembles the persimmon. It grows in great abundance, making in some places small groves. The kind called "De Castile," is very superior to the wild fruit of the same species.

## SIERRA MADRE.

Two miles farther southeast brings us to Campo Santo, or the "burial ground," which is the last place before crossing the Sinaloa boundary line into Durango. It is on the very highest mountain of the Sierra Madre, where half an acre of level ground is hard to find. At Campo Santo some mescal is made from the mescal root, which abounds in that vicinity.

On the right is a bold peak called the "Fresnillo." It is not one league away to the southwest, but two days at least are necessary to get to the summit; for the journey must be performed on foot, and through the densest kind of forest, canebrake, and underbrush. But the view from that summit will reward the hardy adventurer for his toil. On the east of me is nothing but the lofty mountains, crowned with dark pine forests; at my feet are the hills of Guadalupe; and in the gorges below me are the mines of "La Republica," "Guadalupe," and "Los Habas." Far to the north is Cosola, still farther Las Vegas and Culiacan. On the west I descry the outlines of the gulf of California, a large laguna. To the southwest, with a good glass, one may, if the day is clear, see Mazatlan. Nearer is the PUEBLO DE SAN IGNACIO. It is close by, but cannot be reached in less than three days; for between here and there is a world of hills. The gorges of "Del Fresnillo" are full of wild animals—wild goats, deer, lobos, and the Mexican lion. The lobos, or mountain wolf, is a very dangerous enemy to mules or horses turned loose to pasture without a guard, in this part of Mexico. When pushed by hunger it is very brave and fierce.

The "chichalaca" is a bird of these mountains, which chooses the wildest spot to make a nest. It is of a dark, sooty color, and as large as a hen, with longer feathers. Its meat is very finely flavored. It makes an excellent cross with other poultry, and is easily tamed. The noise it makes when hallooing is very much like its name pronounced with force, and wide-opened mouth.

Fresno is the term for ash; but Fresnillo is a shrub which, as a remedy, has cooling properties, and is used in fevers. It grows on these hills. Keeping on from Campo Santo, over twelve leagues of fine pine and oak timberlands, but otherwise of no interest, as it is unsettled and uncultivated, I came to *La Vantana*, a window, or opening in the mountains. It is a fine farm, with pasturage for a large caballada. Some first-rate mountain mules are raised at this farm. Also a great deal of fruit, oranges, bananas, and goyaras. La Vantana is situated on the head waters of the San Ignacio river.

Following up the stream, I came among the homes of the "Ollas," or "clay pots" Indians. The pottery which they make is good, there being in their valleys the best of "barro," or clay, for this purpose. An "olla" is a round pot made of clay, and generally glazed. All the cooking of the country is done in them. An "olla podrida" is a favorite Mexican dish, made of a mixture of almost everything in the way of vegetables or meat that can be got together.

The Olla Indians raise some good, hardy little horses, and cultivate small farms very well. They are an inoffensive race. During my sojourn among the Ollas, I was shown a piece of gold which was taken from the entrails of a cow. It was probably swallowed at some salt lick. It weighed about seventy-five cents. The river has long been worked for gold, and the Indians make from thirty-seven and a half to seventy-five cents per day with their horn-spoons and bowls. They showed me one place where they had worked for a year with success, but had never got to the ledge on account of the water. It is coarse gold which is taken out of these placers. If some intelligent foreigner would come and turn the channel, I have no doubt but many thousands of dollars' worth might be taken out.

# THE VALLEYS OF
# NORTHWESTERN DURANGO.

# THE VALLEYS OF NORTHWESTERN DURANGO.

## MINE OF LA REPUBLICANA.

I HAD now reached the extreme northwestern portion of Durango. Turning back toward Guadalupe, I paid a brief visit to the gold mine of "La Republicana," which is situated in the side of a high mountain. It is a very valuable mine, as far as richness is concerned; but the vein is narrow, and the rock of the greatest possible hardness. It is owned by the Yriarte family, who, unable to work it for lack of capital, merely keep an Indian there, who does just enough to hold possession. This Indian, whom I visited, took out a small piece of the ore and ground it in my presence on a rough metate, then by simply washing it in a horn spoon, showed me quite a quantity of small particles of gold of that particular shade known as mine gold. I should think the ore of this mine would yield seventy *per cent.*

Below the mine, in the arroya, is gold dirt, but it yields only poorly with the pan.

Five leagues southeast by south of Guadalupe is the old mine of "Espirito Santo," another mine of the Spanish times, now under water. There are several other old mines in the vicinity of Guadalupe, but they are so filled up with rubbish it is difficult to speak of their richness with any certainty, although fabulous stories are told of some of them, which seem probable enough, from the fact that Guadalupe stands in their midst, a proof of mineral wealth and successful mining.

## ROAD TO MAZATLAN.

Travelling to get to the Mazatlan road, three leagues of a break-bones road brought me to the *Portrero*, a small farm on the same stream which waters Guadalupe. The borders of this creek are well timbered, and have some patches of rich bottom land slightly cultivated. The wild fruits of the country are here found in abundance, while the hills furnish excellent grazing.

Two leagues farther on is "Casa Nueva," a well-built house in a fertile spot, owned by

Don Pedro Nabarro, an honest Mexican gentleman, and a well-wisher to strangers. Five leagues more brings us to the crossing of the Cosala or *Elotus* river, which runs west by south to empty into the gulf of Cortez. After crossing the Elotus river, the country is high, hilly, and broken, with scarcely a piece of level ground for twenty-five miles, after which its face becomes more even. But, as far as the eye can reach, it is covered thickly with timber and fruit trees, only excepting some small patches of cleared land. The thick and thorny under-brush renders it impossible to leave the road, unless you choose to cut a path as you go; an undertaking by no means easy, as every bush and tree is covered with thorns, down to the very grass and rushes. This is the character of the country from Sinaloa to Mazatlan; from the foot of the mountains to the coast of the gulf. The wild fruits are mostly of delicious quality, and the soil, when cleared, of the utmost fertility.

Two more leagues of very good road for horsemen brings us again to the Cosala river at *Elotus* (an ear of corn), a very pretty place. The river here forms a small estuary, full of alligators. Fine crops of corn are raised at this place, as well as sugar-cane; and a beautiful plantation of bananas occupies one river bank, making quite an article of export; besides which, oranges and melons are very abundant. The river at this point is a considerable stream, and when swollen by rains is not fordable.

Going south from Elotus, the only interesting object on the first part of the journey is a fence, leagues in length, of tall bisnagas (a species of the cactus, very strong and thorny, and without branches). It makes a fence through which neither horses nor horned cattle can go, and besides being imperishable from rot—green and living, and requiring no care—it bears a fruit which, when accustomed to the use, is very nutritious and refreshing.

### SAN IGNACIO.

A distance of fifteen leagues brought me to the San Ignacio river, a pretty large stream. A little above where I struck it, is the town of *San Ignacio*, once of some importance; and just now again beginning to show some signs of its former prosperity returning. There is a fine Catholic church in this place, where a French priest officiates. This Father Martin came here from California, poor in hopes, and poorer in purse; but was so fortunate as to secure the good will of the Bishop at Mazatlan, and got one of the richest livings in Sinaloa. He is a liberal and well-educated priest, celebrated among foreign visitors for his hospitality. There is a good farming country about San Ignacio, and some largely-worked mines. I was shown some fine specimens of copper ores from an unworked vein. Its nearness to the coast will make it of value to some future owner or operator. There exist gold washings in the gullies which run down from the mountains between the San Ignacio and Cosala rivers; but it is fine gold, and very much scattered.

Continuing south through a dense forest of Brazil-wood, which is becoming an article of export, five leagues brought me to *El Palmeto* (the palm), a ranche for stock and grain raising. Following the same direction, three leagues brought me to San Juan, a considerable village of stock-raisers and farmers. Another three leagues on the same road I found "*Noria*" (the well), a ranche of considerable extent for the raising of stock.

### BENADILLO.

Four leagues beyond is *Benadillo* (the forbidden), in a rich, fertile spot, only nine miles from Mazatlan. This is the summer resort of Mazatlan, and will be quite a pretty town in a few years. The climate is pleasant, being refreshed by the breezes from the sea. The forest abounds in Brazil-wood, and the excellence of the soil, together with the cheapness of living, makes it a good point at which to open trade. It is conveniently situated regarding the coast, and is more favorable to economy than Mazatlan.

Sellers of fruit and confectionary abound here; and here every evening one may witness the national game of the *Bola*, with a large ball of India-rubber, of the size of a man's head. The skill of the player consists in receiving the ball which is thrown, on the hip, and keeping it going without allowing it to touch the ground. The players are as nearly naked as possible with any dress at all, and the game is very exciting, giving great action to the muscles.

Another of their sports is the "plank dance." The ball-room is the open air, and a plank all the necessary preparation. The dancers, one man and one woman, get upon the plank, the fiddler strikes up, and they commence their dance, keeping time to the music to the great entertainment of the spectators, who each in turn contribute to the general amusement by a similar exhibition on this impromptu stage.

Gambling is carried on to a great extent, as well as drinking; but I was astonished at the ease with which the judge controlled the motley throng, and kept the peace. The one who was guilty of disorderly conduct, was quietly secured by his comrades, and ironed in the open air, where he was left to cool until the next morning; when the judge came with his key, and set him free without any words.

## PORT OF MAZATLAN.

Mazatlan has often disputed supremacy with Culiacan, and several petty wars have been excited between them. After Acapulco, it is the first in rank of the Mexican ports of the Pacific. The business is mostly in the hands of French and English merchants, and its exports are silver, gold, and logwood. The port sinot considered as good as that of Guaymas, but is rather a roadstead; and in heavy storms vessels are obliged to put to sea for safety. During the three fall months the navigation is considered unsafe. Mazatlan has a population of three thousand. The country around it is good for agricultural purposes, but the water at Mazatlan is brackish and bad. When the resources of the country, both agricultural and mineral, shall have been properly developed, this port cannot fail to have a brisk trade. For a few years past, new interest has been awakened concerning the mines in its vicinity—"Capala," "Oanuco," "El Rosario," and others. When communication with the interior has been made easier, new life will be infused into the mining interest.

The land around Mazatlan, for a distance of forty miles, is a rich, black, loamy soil, nearly inexhaustible, and capable of producing all kinds of grain. The wood which covers it at present will pay richly for the cost of clearing, as well as the price of the land itself. The climate is not so hot as might be supposed, the sea-breezes greatly relieving the temperature, and making the night gratefully cool and refreshing. Further back, near the foot of the mountains, are some very desirable locations, where water is abundant, and of very good quality.

Toward the south is the small port of *San Pla;* and across the mouth of the gulf are the different small ports of the coast of California, which keep up some intercourse, and where the valuable pearl fisheries are situated. Thus there are few situations where a new and rich trade could be more profitably opened, than that afforded by Mazatlan on the coast. Inestimable wealth is buried up in mines, hidden in the soil, and sleeping in the forests, of all this portion of Mexico—wealth which the present race of inhabitants have not the power, knowledge, or will, to free from its bondage. But I look forward to a time when American enterprise shall bring it into active use. And now let me proceed with you along the road to Durango.

## NATIVE TREES AND BIRDS.

It is thirteen leagues from the port to old Mazatlan, or the *Presidio.* The road lies along and around some small estuaries of the bay of Mazatlan, and is settled by fishermen. Along the way are numerous small stores, or *tiendos.* After passing this portion of the road we go straight east, through a splendid bottom of ten leagues in extent, following the Mazatlan river. The bottom is thickly wooded with tropical trees, and a luxuriant growth of underwood; and here again the Brazil or Logwood grows in abundance. It is a low timber, with a thin, polished bark, and covered with ridges twisted the whole length of the tree. The wood being a valuable dyewood, its exportation makes a profitable business; native labor being cheap. The *banyan* is also abundant in this region. The leaves are very long, slim, and green; and the branches grow a great distance horizontally, when they send shoots down to the ground, which take root, forming new trees. Some of them make a shelter and shade for a long distance. It was in the month of March when I passed through this bottom; but the trees were covered with every variety of birds, beautiful in form and color, from the little, glinting humming-bird, to the "guacamagor," a large kind of parrot. Of the last there were several species, of every color and all varieties of notes, from the startling call to the mocking cry. I never enjoyed a scene with more lively pleasure. Nature spoke in the voices of those feathered chanters, in the rich vegetation, in the air loaded with perfume, and in the roaring of the sea which grew every mile more faint and far off. This bottom land, now so prodigal of wild vegetation, will sometime become a wealthy agricultural district. The banana, cocoanut, and native cotton, grow here uncultivated.

### OLD MAZATLAN.

I arrived at the river, and crossing it, found myself at the *Presidio.* A presidio is the chief city of an old Spanish district, and the seat of government when the Spanish kings used to appoint a supreme judge, who, aided by the municipal officers, administered justice, and took care of the revenues. A presidio was formerly garrisoned. This one is an old, dilapidated place, situated in a beautiful and fruitful country, where every kind of produce grows with but little cultivation. The population of old Mazatlan is about twenty-five hundred.

### SAN SEBASTIAN.

Going east from the presidio nine leagues, over a fine farming country, I came to *La Villa de San Sebastian*, a village amid cornfields, banana plantations, and orchards of "*circuelas*," or wild plums. It is remarkable of these plums, that the fruit only appears after the leaves have fallen off, and that the tree yields two crops annually. There are also large fig-trees along the creek, a pretty tributary of the Mazatlan river. This village has a population of one thousand inhabitants, and considerable trade. It has the appearance of being a very old place; and I doubt not that when the mines in the surrounding country were worked, in the times of the Spanish government, it was a busy mart of commerce and opulence. It has at present some very good houses, several stores, a church of considerable pretensions, and the streets are paved, with sidewalks also in a good condition.

### AGUA CALIENTE.

Going east from Sebastian, eight leagues, I passed through a country well timbered, with some small patches of cultivated land, and came at the end of this distance to the hacienda of *Agua Caliente*, where is the hottest boiling spring I have ever seen. The water is actually scalding. The natives use it in dressing hogs, chickens, &c. There is no mineral in the water, and when it is cold it is fine water to drink. On this ranche of Agua Caliente is a large plantation of the "maguey de Castile"—the *de Castile* distinguishing it from the wild maguey, which grows so thickly in some parts of Mexico as to form veritable forests. The maguey is the tree of whose root the mescal liquor is distilled, which is in such general use in Mexico. From the sap of the maguey another liquor, called *pulque*, is made. The sap is obtained by tapping the tree in the same manner in which our farmers perform the tapping of the sugar-maple, by making an incision in the trunk or stalk in the spring when the sap is ascending. From the leaves of the same plant are made a kind of thread called "pita," used in place of flax thread in sewing leather, sacks, and bagging.

From Agua Caliente, going south toward the mountains, I travelled six leagues over a rolling prairie, or table-land, which brought me to the foot of the Sierra Madre. Just here is the *Ranche los Muertos*, or "ranche of the deaths," a very dismal name, given in memory of some sanguinary strife, the results of which are marked by the numerous crosses still standing. At this place are plenty of peaches and bananas: the bananas on the bottoms and the peaches on the more elevated places.

## COPALA.

From *Los Muertos* I plunged into the passes of the hills, my road going southeast through a very rugged country, though the road kept in the channels of the creeks, now dry. In this way I reached Copala, travelling a distance of ten leagues.

There are placers in all those water-courses. In 1856, quite an excitement was created by the discovery of large "bolsas," where some money was made. Flocks of diggers rushed to the placers, the crowd and their improvidence being so great that actual starvation ensued. But the jealousy of the Mexican authorities was such that they sent soldiers to drive away the miners, lest a new California should be created, and the country filled with foreigners. Thus, by their ignorance and stupid prejudice, they prevented the thorough exploration of the country.

Copala takes its name from the great amount of gum-copal taken out of the surrounding woods. It is a silver mine of a good deal of importance, worked by an English company, who make use of the latest improvements in machinery. A splendid steam-engine is employed to dry the mine and to do the work of stamping the ore. There are about three hundred inhabitants at this place, and it is the last point of civilization on the road toward Durango, still two hundred miles east of the Sierra Madre. It is one hundred miles from Copala to Mazatlan.

Crossing a deep cañon, and going north two leagues, I came to another mining place—"Panuco"—it being one of those mines which have for years maintained the reputation of doing uniformly well. The name signifies *bread-town*. The mine is worked by Mexicans.

Climbing the mountain overtopping Copala, the ridges of the hills must be followed. The descent on either side is very precipitous, and the ravines are filled with stunted oaks, wild bananas, and chapotes. Parrots and chichalacas fill the air with their rasping cries. Higher and higher we go, until we reach *Santa Lucia*, a little cluster of houses, among cornfields, and orchards of chapotes, circuelas, and oranges. A new silver mine has lately been discovered, not far from here, which is yielding very handsomely. I saw the ore and some bars of the metal, which the owner showed me. He had just begun operations with half a dozen miners, and was anxious to get a foreigner to go in with him, as he said to me a Mexican could not be trusted—a melancholy opinion to have of one's countrymen.

Leaving Santa Lucia, I entered the fastnesses of the Sierra Madre. The mountains are covered with pine forest. The road is a mere mule path, where the greatest caution is necessary to prevent being precipitated down the rocks for hundreds of feet. The road lies in a general easterly direction, but the path changes alternately from side to side, and to all points of the compass, sometimes with the sun in your face and now upon your back in the same hour, as the difficult way leads winding up and around the summits.

## THE SIERRA MADRE.

The first day after leaving Santa Lucia I camped. It is not at all difficult to find wood or water, but much more so to get to a level spot for an encampment. It is a dangerous place for animals, who are invariably found bloody in the morning about the neck or on the back, from having been sucked in the night by *vampires*, or Mexican bats. They settle upon the bodies of the poor brutes, who seem not to feel them, and so suck out their life-blood. Long streaks of congealed blood mark the sides of the unconscious sufferers. These vampires rarely suck human blood, though I heard of some cases of women, sleeping uncovered in warm weather, being found in the morning insensible and with their neck bloody. For my own part, I had a great horror of them.

Following the hillsides of several mountains (the Laderas range), I came to a miserable hamlet of *jacals* (houses) on the top of a high mountain. Half a mile below it, on the road, is the shrine of some saint—a small square, enclosed by a stone fence, within which stands an altar, decorated with the picture of the saint, and tastefully entwined with garlands of wild flowers. Before this shrine stood an earthen vase containing some copper cents. I pleased myself with throwing in a white silver quarter to "astonish the natives."

Farther up still among the mountains, I crossed a stream which, in the rainy season, is impassable, and came to a small settlement called *Chapote*. There grew the last bananas that I saw upon the road. I had now passed all the places where provisions could be depended upon. The only safe mode of travel, in any event, in a country like this, is to pack your own provisions. On leaving Chapote I ascended a high mountain, which the road follows, along the top ridge, for eight or ten leagues. It is called "l'Espinassa del Diabolo," or the "Devil's Backbone." The road is as narrow and slippery as a road with such a name might reasonably be, and on each side are precipices down which, if you look, you can hardly see the bottom. Surely no human foot ever trod those depths, which look quite outside of this world of ours. No place I ever saw inspired me with such a dread of being lost, as this wild and terrible mountain country. Nothing but high, steep, and rugged mountains around me for hundreds of miles—

the settlements few and far between—no roads; nor is the sun of any use to bring one out of the bewildering labyrinths. Only the tall pine-trees and the everlasting sky are my company. I must not hasten; I must go step by step carefully and wearily. Yet here, also, I see Nature in her most imposing aspect. Magnificent mountains, dashing torrents, and the grand loneliness and silence!—these things speak God to the heart of man in an awfully impressive manner. A man who has not seen such sights as these in the Sierra Madre can hardly be said to have lived!

A storm among these heights is terrible indeed. Nowhere can the wind make such melancholy and such fearful sounds as among these giant pines, and sharp-edged, echoing rocks. What a sight, when the lightning illuminates for an instant the ravines below! What sounds, when an avalanche goes crashing and thundering into the depths beneath!

After some leagues of this rugged road, I descended into a little valley called *Charavarri*, where there are about forty inhabitants, who live by hunting and raising a few bushels of corn. Deer are plenty in this valley. On leaving it I had another weary road to travel—an ascent of two leagues, very steep. Making this ascent, I followed a rugged cañon, which, after some leagues, opened into another pretty valley, with a pure stream of water meandering through it, fine grass, and fine timber. In this valley I passed the grave of an American woman, who died on her way to California to join her husband. Peace to her ashes!

Some farther on were the ruins of a hacienda, amid fields fenced with stone. The buildings were chiefly of brick. Not far away stood a reverberatory furnace, constructed on the English plan, rather small, and evidently designed for smelting copper ores. Why it was abandoned I could not discover. Excepting the difficulty of transportation, the situation was a good one. No doubt either but some improvement of the road could be and will yet be made, as the necessity for transportation increases.

I was now travelling along the eastern slope of the Sierra Madre. Some of the valleys on this side are capable of cultivation, and the pine timber is of the best quality. In one of these valleys, which has a good bottom, I passed the night in an old house ruined by fire; also passed on the road a natural house, formed in the rocks, with doors and windows, a good lodging-place for travellers. The atmosphere has become much colder, and this is the land of "Tierra Fria" or "cold land," *y contra* of "Tierra Caliente," to which we may now bid farewell.

After ten leagues travel on an undulating table-land, I came to the ranche of *Cayotes*, or "wolf ranche," eighty miles from Durango. It is a place of but little interest. There are some springs bursting out of the hillsides, and from the appearance of the soil, I should judge that it would make good farming land, or corn-fields. At present it is but little cultivated, and the few inhabitants look squalid and miserable.

At this place the traveller meets a *conducta* (escort), of twenty soldiers from Durango, which comes out once a fortnight to protect those who go this road, from robbers and Comanches. And from the numerous crosses which line the way, one may learn something of the frequency of the murders committed by the hands of the savage Indians, and the not less brutal bands of robbers which infest all Mexico. The crosses are only of wood, stuck in a pile of stone. Sometimes several occur together, showing that a whole party has been murdered. Another one tells of the death of some lonely priest, struck down without regard to his holy calling. The guide, as he points to them, crosses himself, and mutters a prayer to the virgin, or his patron saint.

My course is now east, over a country of undulating surface, half prairie, half woodland, with numerous patches of "Manganilla." This is a shrub which bears a berry with the flavor of an apple; the wood is of great hardness. Twenty-five miles from Durango we come to the head waters of the Rio de Santiago, which runs southeast from here, although it empties at last into the Pacific ocean below San Pla.

The descent into the valley or channel of the stream, which we must cross, is very long and difficult, the river passing through a deep chasm; and the ascent on the other side is equally arduous. After passing it, we have two leagues more of rolling plains to cross, and to follow the side of a very steep hill for some distance, after which we come into a broad, level road, and may gallop into Durango.

### CITY OF DURANGO.

This is a celebrated inland town, of some pretensions to opulence. The streets are regularly laid out, at right angles, and well paved. The *Plaza* is a very pretty affair, watered by a spring which sprouts at the foot of a mountain overlooking Durango. This spring is very large, and forms a lake on the south side of the town. Its borders are laid out with spaded walks, and a public garden attached, which is now in rather a dilapidated condition, though showing traces of having been one of the finest of Mexico, which has many fine gardens. The taste for them seems to have descended from the aboriginal inhabitants, who had magnificent public grounds at the time of the Conquest. This one is very much frequented as a *paseo*, or promenade.

The Cathedral of Durango is the most celebrated of any on the continent after *Puebla*, for its richness of ornament in gold and silver. The massive candelabra of gold has a story of irreverent fraud connected with it, which does not reflect much credit on the character of a certain foreign artist. In 1846 the bishop ("el obispo"), thinking the design too crude and heavy, intrusted its improvement to the artist referred to, who gave it a number of fantastical embellishments, that relieved it of some pounds weight, beside filling up the hollow shape with lead. I subsequently met with the tricky silversmith, who was much better pleased with his acuteness, than was the bishop, who had discovered the fraud. Durango is only the wreck of its former grandeur. In the time of its greatest prosperity, the wealthy citizens carried luxury to such an extent as to have silver railings to the balconies of their houses. In the altered condition of their affairs, they are content to replace them with more worthless iron. All the changes of government in Mexico have been most severely felt here. Families once rich and powerful are now become extinct, and only adventurers replace them. The military exactions of the past few years have broken the spirit and enterprise of the people. The most fruitful mines are abandoned, or nearly so. The rich haciendas have been sold for one fourth of their value, or are left to the ravages of the Indians, who of late years have come within forty miles of the city. During my stay, I saw haciendas sold by asking one dollar a head for all kinds of cattle, and the houses and fixtures thrown in. Such is the inconstancy of the government that capital dare not risk itself here, even when property can be purchased at this rate. The taxes are so enormous that all persons alike desire to draw in their money; and business men are only anxious to sell out and get away from the country.

The mountain which overlooks Durango is a rich mine of different ores, silver, lead, copper, and iron, all of which are said to exist within it, yet it is unworked. A factory that was once in operation, is now idle for want of the raw material. All labor is paralyzed, yet living is good and cheap. A *meson*, or hotel, is kept on the best possible terms. Good, airy rooms may be had for twenty-five cents a day, and good safe stabling for animals. Beside this best *meson*, there are two others of an inferior grade.

The climate of Durango is cool, healthy, and agreeable—the climate of the temperate region of Mexico. In the valley, watered by the before-mentioned spring, are orchards of all varieties of fruit, beside some large and well-stocked farms. The grazing of the valley is excellent. Through this valley is the main wagon-road going to the southeast part of the state, along which are some large and fine stock farms, and a few of those mines which have once made *Durango* and *San Luis Potosi.* As we come nearer the southeast portion of the state, we find the country in winter troubled with cold, piercing winds; at the same time wood is rather scarce.

Durango has some fine state buildings. The mint is an old established institution; but every day adds to its losses while the present state of revolution lasts in the country. Nor can a different condition of affairs become possible until a foreign colony has settled in the northern part of the state, sufficient to protect it from the inroads of the Comanches; or until foreign influence makes a change in the polit·cal feeling of the government. Could grants be obtained of large tracts of land in the mineral regions, or near them, a great advantage would result to the Mexican as well as the settlers. These foreign settlements would become centres of trade, and would gather about them the industry of the country, and give a direction to its industrial capacities, which are for the most part unemployed at present.

Men of some means should be the ones to

undertake or direct the enterprise; and men, too, of steady, exemplary character, and not adventurers. The good will of the Mexicans is to be conciliated by an example of upright dealing; and their ambition awakened by an exhibition of superior intelligence. In this manner, by farming, mining, opening roads, and improving the country, the foreign influence would soon be able to control the intelligence and capital of Mexico; nor is such a consummation very distant.

Although feeling my inability to do the subject justice, I have endeavored to place simple facts in such a light that my readers could not but draw plain inferences. I shall now proceed to give them in the same manner a partial survey of the northern part of the state of Durango, and of the southern portion of Chihuahua. After which I shall cross to the Pacific side again, and describe to the best of my ability the mode of travelling, the road, and as before, the agricultural and mining wealth of the country, although in a slight and fragmentary sort of manner, rather by notes than by full descriptions.

# DURANGO, CHIHUAHUA,

## AND THE ROUTES TO THE PACIFIC.

# ROUTES TO THE PACIFIC.

## A TRIP TO THE SIERRA MADRE.

I HAVE often remarked that our American travellers who every year seek the excitement of mountain scenery in Europe, and among the Alps, would find themselves well repaid, if not greatly surprised at the grandeur nearer home. The Sierra Madre of Mexico would amply recompense the exertion necessary to behold the most magnificent scenes, and most rugged passes imaginable. Nowhere can the possibilities of Nature be better realized; nowhere the spirit of the sublime impress us more forcibly; nor anywhere can such sudden changes of climate be encountered, from the heart of the tropics to the cool breezes of the "tierra templada," or temperate zone.

From the States, several routes are available, from the mouth of the Rio Grande four hundred miles north. From San Antonio, Texas, the road is to the Rio Grande, at the Eagle

Pass Crossing, where is situated a small village, Piedras Negras, of some four hundred inhabitants. Here has lately been opened a custom-house; and it has become the principal business point for the larger inland towns of Chihuahua, Durango, San Luis Potosi, Parras, Monclova, and Saltillo. A hope is entertained of a railroad communication from San Antonio to Chihuahua, by a newly-discovered route or trail through the Indian country. A mine of coal has lately been found to exist, about eight miles above Piedras Negras ("black stones"), on the American side; and still more recently a fine seam of excellent coal was discovered four miles from the same village, on the bank of the Rio Escondido, a tributary of the Rio Grande. I saw this coal proven at a blacksmith's shop, where it gave the best results. The mine is situated in rather a level tableland, amid groves of mesquit.

Along the bank of the Rio Grande are some fine fields: and the plain back of the village would make good farming land, if it could be irrigated. Four miles west of Piedras Negras, we cross the Rio Escondido, or "hidden river." It is a cool, pleasant stream, well shaded by fine timber, but deep and treacherous. At the time of Capt. Henry's expedition in 1852, many Americans were drowned in attempting to cross it. No lovelier locations for farm-houses could be found than those along the banks of this stream. It empties into the Rio Grande five miles below Eagle Pass; having taken its rise in the mountains between Chihuahua and that river.

### SAN FERNANDO.

Following this route west thirty miles, over a high rolling prairie, you come to the town of San Fernando, where the Bishop resides. It is a town of about eight hundred inhabitants; and a good deal of trade is carried on with the American forts of Duncan, Las Morus, and the post at La Leona, in corn and provisions. Southeast of San Fernando, eight miles, is *Nava*, an old mission, where the Indians are all farmers, and raise great quantities of grain, corn, wheat, and beans, and fruit in abundance.

### SAN JUAN.

To the southwest is situated the village of San Juan, which is an entire orchard of mulberries, oranges, peaches, figs, and granadas. This village has a population of three hundred. Here is the home of the Mexican sugar-cane; and here, too, they make the "pelonico," or funnel-shaped cakes of sugar. Large lots of cattle and hogs also are fattened.

## MORELOS.

Five miles east-northeast of San Fernando is the town of Morelos, a place of considerable pretensions, and apparently the *creme de la creme* of the three last-mentioned places. Here is a school established by a foreigner, where Latin, English, French, and Spanish, are taught. Pupils are sent from a distance of seven hundred miles in the interior. The inhabitants are chiefly farmers and stock-raisers, having large herds of cattle. They are also the bravest people in this region, and have volunteered strongly against the Indians. They fought very courageously against the far-famed *Lispans*, who have, since the heavy losses then sustained, been powerless.

Six miles to the west of San Fernando is the *Molino*, a flour-mill, worked by water-power. Here I noticed an arch dated 1780; and the old miller told me stories of Indian battles fought there during the last fifty years. From this place the road goes west-southwest over a higher country. Twenty-five miles will bring you over a low ridge, to some dirty water in a thick grove of chapparal (mesquit). This is a regular halting-place, it being thirty-five miles to the next, at the crossing of the *Alamo*—a stretch of country very dangerous on account of Indians.

The Alamo has a fine valley for settlement; the bottoms being rich, with an extensive grazing country to flank it. The timber is fine, while it is not far to good markets.

### SAN JUAN DE SABINA.

Eight miles south of the crossing is *San Juan de Sabina*, a very prominent little place, situated on an eminence, at the foot of which runs the Sabine river. Here, also, are the richest of bottom-lands, with a belt of excellent timber on both sides. At a short distance are the Santa Rosa mountains. *Santa Rosa*, twelve miles from San Juan, is quite a thriving place. A lead and silver mine, worked by a German, is said to pay well. The Seminole Indians are settled not far from Santa Rosa. I here saw one of the sons of "Wild Cat," of Florida notoriety. They have always preserved peace with the Mexicans, helping them to fight the other Indians. San Juan de Sabina has lately been colonized by a gentleman from Danemara, Sweden, with a small society of his countrymen. A bridge over the river at this place showed signs of improvement.

Thirty miles beyond San Juan is the hacienda of Agua Caliente, a large stock-raising farm. Some distance on, over a broken country, is the stock farm of San Antonio. From this farm the road goes south forty miles, to Lambessa creek. Passing along this road, I saw thousands of heads of sheep. The grass is plenty, but timber and water are scarce. The water of Lambessa creek is very brackish. Its bottoms are large, and well wooded with mesquit.

Twenty miles southwest from this creek brings you to the hacienda *Los Hermanos*, another large stock and grain-growing establishment. Here is a very celebrated hot spring; the water being hot enough to cook eggs, and so abundant as to furnish the means of irrigation to its neighborhood.

### MONCLOVA.

Thirty miles through a dry country brings you to Monclova, without having passed anything more interesting on the road than an old ranche where I saw a few sheep in a brush corral, some grass, and some mesquit timber. Monclova was formerly the capital of the state of Chihuahua, in which it is situated. All the business of the state is still carried on here. Its population is about four thousand; and it has several churches, a plazo, and an alameda.

Crossing a small ridge beyond Monclova, you come down upon a thriving village of four hundred souls, where an abundance of fat poultry and fat hogs, as well as large crops of grain, give evidence of the fertility of the soil. Indeed, it is the garden of the surrounding country, which is very hilly and stony. Here are the head waters of the Sabine, which first flows north, and then east until it receives the waters of the Alamo, and then empties itself into the Rio Saltillo (or salted river), which runs into the Rio Grande.

Eight leagues north of Monclova is *Sienega*, on the edge of a large marsh communicating with the Massimi lake. Large quantities of wheat are raised here. Sugar-cane and corn are also staple products.

Leaving the head waters of the Sabine river, the road lies through ten miles of a mesquit country, when you arrive on the border of a large plain, where is a well at which water is sold. There is also an old enclosed corral where animals are kept over night for paying a *quartillo*, or two cents a head. At this place separate three roads—the easternmost one going to Monterey, the middle one to Saltillo, and the northern one to Parras. This last we take, though the most dangerous on account of the Comanches. It takes us southwest, through a mesquit country, where the ground is covered with every species of *cactus* from the broad, round leaves you may find at the druggists', to the tree-like "visnasgas," with branches like deers' horns. Riding ten miles, we come to a water-hole, where is plenty of grass. After leaving this place, the country is undulating, and the road takes you between ranges of hills; all the time gently ascending, and dry and dusty. There is no grass to be seen, while the mesquit is full of thorns. Twenty miles of this unpleasant road brings you to a hacienda, walled in, and having four towers furnished with port holes. Here are two large ponds of water, but its use must be purchased. I noticed at this place some fine specimens of shepherd dogs.

Going hence south, on the top of the ridge, you reach some water holes and grass, after nine miles travel. Twenty miles farther, in a westerly direction, over a rolling plain with some patches of good grass, brings you to a piece of fenced land, several miles in extent, where cornfields mingle with verdant pastures and fruitful orchards. It is a real oasis in the desert of dry land about it. At this place is a population of about four hundred, but miserable and squalid in their appearance. Myself and party when I travelled this road were well entertained here—they would willingly have kept us longer if they could—a foreign company being considered good protection against the Indians.

The road takes us hence twenty miles across the plain, to a small and pretty village, on a little creek. It is the last village on the way, until within twenty-five miles of Parras; and, between the two, lie about sixty miles of very dangerous country. Twenty miles will bring you to a cool creek, Los Alamos, where refreshment may be taken both internally and externally. The next twenty miles are over a rolling, barren plain, shining in some places like glass, where an old, deserted ranche affords a camping-place. Beyond this is another abandoned ranche, where not a drop of water can be obtained, and the only resort is to burn some cactus for the thirsty animals. Still farther on is another deserted farm where, at the foot of a hill, is a fine spring of water.

At this place I saw a fresh trail of the Comanches, who had passed, not two hours before, with a large drove of animals. They were returning, probably, from a plundering expedition into San Luis and Zacatecas.

From here the road goes west, entering a mountain gorge, which leads, by a steep ascent, to a narrow and dangerous cañon. The darkness is so great that the light of midday scarcely penetrates it; but, at the end, is a little glen, enclosing a fine spring and a patch of fresh grass. The heart of the weary traveller leaps at the sight of this little bower of repose after the toil and danger of the way.

Getting over the ridge, scattered farmhouses begin to appear, with fields enclosed by stone fences. But the road is dotted with crosses, and the inhabitants have a cowed look, as if they knew they held a lease of life which the Comanches might at any moment terminate. Passing on to the *Hacienda de Abouja*, excellent management immediately strikes the eye. The owner has fine gardens, a fine house, and an extensive warehouse or cellar, where casks of wine and brandy are ranged side by side, according to the ages of the liquors. The brandy is well known in that portion of Mexico as "aguardiente de Parras." A good distillery and flour-mills are attached to the establishment. Orange groves, monster cactus, vineyards, everything show careful cultivation.

### PARRAS.

One league southeast from this hacienda is the town of Parras, with a population of two thousand, and some considerable trade. It exports brandies and wines to the extent of a small commerce, and raises plenty of provisions, being situate in a fertile valley. Parras is garrisoned by a force of military, who are occasionally sent out to scout after Indians. I once travelled in company with about two hundred of these soldiers, some twenty miles. They were on this occasion commanded by a stalwart negro, sometimes called Juan Caballo (John Horse), or more commonly *Juan Vidaurri*, on account of the confidence placed in him by the then "Candillo del Nord," or "Chief of the North," as the all-powerful Vidaurri has been called. The company I speak of falling in with was composed of not soldiers only, but twenty Seminoles and eight negroes, the latter probably runaways.

Twenty miles northwest of the hacienda of Abouja, in a pass, are some fine groves of mesquit, and some large water holes. All the rest of the surrounding country is covered with the worst kind of thorny mesquit, without anywhere a blade of grass.

Twenty miles south is the hacienda *De la Pena*, situated on the ridge encircling a large, marshy plain, or lake, of twenty leagues in extent. You arrive at the hacienda just as you get a view of the valley where the lake is situate. It is built in the only place where the ridge is passable, and you must go through its gates to descend into the valley. It is a square-built place, with solid masonry for the walls, and surmounted by a high watch-tower. The water and the dwellings are within the enclosure. I had the curiosity to ascend to the tower, and found there a singular guard. At each corner of the parapet surrounding the tower was a post dressed up in the clothes of some foreigner who had been butchered by the Indians—coat, hat, cravat, and all. In the hands of these scarecrows were sticks, with which they were sighting as if to shoot. I descended, to get a look at these sentinels from below, and found that they had all the appearance of a watch from a little distance. No doubt they have had the effect to keep away many a prowling Comanche.

This ranche raises no crops whatever, being only a stock-farm. The water is supplied by a spring; but, in riding fifteen miles along the edge of that moist valley, I was convinced that here might be raised splendid crops of rice, cotton, and sugar-cane.

Going from the *Pena*, and leaving the lake on the right, you must travel twenty-eight miles before reaching the town of *Alamo de Parras*. This place is situated on the south of the lake, which is called "Laguna de Parras." It is a large farming town, and contains about eight hundred inhabitants. Here the road which goes to Durango separates itself from that going to Chihuahua, the former going north and the latter west-southwest. The farming lands are irrigated by the water of a creek, called Rio de Parras, which comes from the south, and loses itself in the lagoon.

The road to Durango goes through a long, winding pass, of some forty miles in length, and during the whole ride no water is to be found. Grass, also, is very scarce, but wood is plenty. Along the latter part of the road the *mescal* tree is so abundant as to make a thicket impenetrable as a canebrake. At the end of the pass is the hacienda of Don Juan Perez, where water is raised to the surface by machinery worked by mules, and sold to travellers. At this farm large herds of mules and asses are kept, as the grazing is fine. The making of mescal is also carried on extensively, though in the simplest manner possible, and with the commonest contrivances.

## VALLEY OF THE CUENCAME.

Twenty miles west of this hacienda is the *Rio de Cuencame*, a fine creek; but there is no grass in all the surrounding country, and the soil is so rent in holes and gullies as to make travelling dangerous.

Two leagues west, behind a mountain, is the shrine of "*El Santa Nino de Atocha*," or the "Holy Babe of Atocha," at which place miracles are said to be performed, for the benefit of those who have faith to make the pilgrimage. It is surrounded by fine orange-trees, watered by the same river.

Thirty miles west from the hacienda, over a good wagon-road, though mountainous and without water, is the valley of the Cuencame. As you descend the mountain, the valley looks like an amphitheatre, shining white under the sun's rays, with a line of dark green verdure through the middle. This verdure is the foliage of cotton-wood trees, in the midst of a grove of which is a town. Beyond it are the bold, naked mountains of the temperate land, called the "Miembras," beyond which lies Durango. Those mountains are a prolongation of the New-Mexico mountains which unite with the Sierra Madre, south of Durango, and make the upper table-lands of Durango and Chihuahua.

## CUENCAME.

Cuencame is a busy little place, whose industry makes it flourishing. Large smelting furnaces are here in operation, for the smelting of the ores of silver which abound in the surrounding mountains. The furnaces are well built, of brick, on the English plan. The inhabitants are engaged at their different occupations in the most assiduous manner, quite different from most Mexican villagers. I took up my quarters while there at the meson, a nice little place, where I was the only guest. But during my stay I was invited to his house by the "Debitado de las Rentas," or "Collector of Taxes." I found him anxious to get information concerning the American States, about which he asked many questions. In European affairs he was apparently well-versed. Among other curiosities which he showed me was a coat-of-mail of fine steel wire, which must have been worth as much as five hundred dollars. He put it on, and directed me to try the point of my bowie on it, which I did, blunting it by the blow without making any impression on the coat. I was so fortunate as to witness the celebration of San

Juan, or St. John's day, while at this pretty village. The little plaza was decorated with flowers and pictures, and around it were placed altars beautifully hung with silks and muslins, and tended by the fairest señoritas of the place. At midday a grand procession took place, and afterward a display of fireworks.

In the evening, among other dances, I was struck with the "Mata China," a kind of tragedy, acted masked and dumb. The whole proceeded with dancing and gestures, not a word being pronounced, while the feeling of the scene was well enacted by this pantomime.

It was with a feeling of regret that I took leave of Cuencame, and the kindness and courtesy of its people will long be remembered by me with pleasure as well as gratitude.

### FROM CUENCAME TO DURANGO.

It is still fifty leagues to Durango from Cuencame, in a west-southwest direction. The first portion of the road is over a range of volcanic hills, and the latter is along an elevated table-land. It is easy for the traveller to come over the road, already described, in a carriage; but, from Cuencame to Durango or Mazatlan, a good riding mule or sure-footed horse is much better, and, for the conveyance of his baggage, pack animals will be necessary. Animals can be purchased cheaply at Cuencame, and those that are used to strong, rocky ground, as the country there is very gravelly.

The first twenty miles, after leaving Cuencame, are pretty rough travelling, and bring us to a stock-raising ranche, where plenty of mules are bred, of a fine quality. Here water is elevated to the surface by a drum propelled by mule-power. Twenty miles north of this place is a valley where cotton is raised, and where there are some factories at work manufacturing the "Manta," an unbleached cotton cloth much used by the Mexicans. It is a flourishing little place. From here the road leads over a valley covered with a growth of the *vinasgas*, whose fruit is so much relished by the people of the country. The valley also affords fine grazing, but water and timber are very scarce. Thirty-five miles take us to a fine prairie, at the lowest part of which is a deserted ranche called *El Saucito*, or "The Willow." A large willow-tree, shading a spring of cool, refreshing water, gives the place its name. Cantering off on the prairie from this spring, I beheld the first drove of wild horses that I ever saw. No sooner did they discover us than they fled *en masse* and at lightning speed.

From *El Saucito* to *El Sanz* is twelve miles, over a high country, slightly timbered. El Sanz is in sight for ten miles before reaching it. The people of that place did us the compliment to mistake us for Indians, and sent out several scouts to intercept us. Their scouts cautiously peered on us from the woods, and seeing their evident hesitation, I maliciously gave chase to one of them, and ran him quite out of sight. The fellow was an expert at running, and got a good fright; but my party were, nevertheless, well received at the village, and supplied with plenty of provisions of every kind. They would gladly have detained us much longer, for our company appeared to them like a protection. *El Sanz* is a stock and grain ranche, as is, also, *Laguna*, twelve miles on the road, where is a lake, or lagoon, near which we shot several wild pigeons. The population of each of these ranches was about four hundred.

The next forty miles of road are over an undulating country, where is nothing of more interest than two rather poor ranches. There are four miles of this road in one place so stony that you are forced to dismount and lead your mule. It is as if a hail-storm of stones had fallen on those four miles. Beyond this bad road are some water holes, but the water is brackish. A little farther on is the hacienda of *Los Chouos*, or the "Water-spout," where water flows abundantly out of the ground. This is really a fine place, built of solid masonry, whitewashed. It was once taken by the Comanches and burnt, which is the reason of its being rebuilt in modern style. There are large droves of sheep and mules on this farm. The residence of the "amo," or owner, is a pretty piece of architecture, the colonnades being in the Corinthian style; and all else about it showing unusual refinement. The country around Los Chouos is thickly wooded with mesquit, and the soil rich. One or two farms may be discovered in the clearings. From this place to Durango is thirty miles.

Three leagues from Durango is the crossing of the *Rio de Huatmipi*, near which is situate a fine hacienda; but it is not visible from the road. Between this one and Durango is a large hacienda, said to be one of the richest in the state. From here a fine road leads into Durango, which is seen at a distance from the plain.

The stranger entering Durango will make one of his first visits to the mountain which overlooks the city. On its summit is built a church, and hidden in its bowels are rich leads of silver ore, as well as iron and other metals.

Having gone over one of the routes by which the traveller may reach the mountain country of Mexico from the United States boundary, I will now, in the same manner, furnish my readers with the notes of a different route.

## ROUTE FROM MATAMORAS TO DURANGO.

*Matamoras* situated on the west bank of the Rio Bravo, is too well known to need description. It is in the state of *Tamaulipas*, and is one hundred and fifty miles from Monterey, capital of *Nueva Leon*.

From Matamoras, fifteen leagues of dry country and level road bring the traveller to *Lorro*, a small stock ranche, with a population of one hundred souls. It is on a stream of the same name, which runs into the Rio Grande. From Touro it is fifteen leagues to *Las Chinipas, the "curly."* The country along the road is level and dry. A "represso" is the only feature of the whole road worth noticing. Chinipas is a busy little place, with a farming community; and is watered by the head waters of the San Juan.

Ten leagues from this village will bring us to *Cadeireita*, situated on the Monterey river. Here there are fine groves of oranges, and orchards of other fruit, also fields of sugar-cane. The population is about five hundred. Along the banks of the river are some fine haciendas. Ten leagues more takes the traveller to *Monterey*, the capital of the incorporated states of Nueva Leon and Coahuila. Another route from the Rio Grande to Monterey, is from Camargo over a rough and uninviting country. *Ceralbo*, the first place on this road, is in the midst of chapparal thickets. *Marin*, a small village of three hundred inhabitants, is situate on a small creek on a high, broken plain. Between Ceralbo and Marin is *Papagallo*, an old deserted ranche; and two leagues distant is *Ramos*, another ranche. It was between Ramos and Marin that the United States government trains were lost in the "Urias" massacre. Doubtless the public and my friends will recollect that I was the only one of that party who escaped the general slaughter. From Marin to Monterey there is a passable wagon road.

Two leagues *beyond* Monterey is *Los Molinos*, the mill, a place of no particular importance. Twelve leagues farther on is *Rinconada*, or "elbow," a stock ranche. The country is poor, dry, hilly, and thorny, made up of valleys and mountain passes. Twelve leagues more of the same road brings us to *Saltillo*. This was once the capital of the district of Saltillo, now a part of Coahuila, of which this is one of the most important towns. Its population is about two thousand.

Two leagues west from Saltillo is *Buena Vista*, the scene of General Taylor's victory; and ten leagues beyond is the stock ranche of *San Juan de Panama;* while eight leagues more bring us to the large stock-raising farm of *De las Muchachas*, or "The Girls." The country in this region is mountainous and brushy. In some parts chapparal prevails, while in others the varieties of cactus predominate. Some *palo fiero*, or iron-wood, is also met with; also mesquit, and *huisacha*, a new variety of mesquit, bearing small beans of which animals are very fond.

### INDIAN CHASE PROPOSED.

On my arrival in Durango, from travelling this route with a company of men, I was waited on by the secretary of state with a summons to attend his excellency Governor Hernandez. I immediately complied, thinking he wished to examine my *carta de securida*, and the passports of my company, which I took along with my own, for examination. On presenting myself to Governor Hernandez, he said to me, "I do not wish to see your passports, but I wish to know if you would like to fight the Indians with your men." I answered that I was unable to speak for my companions, as they were American freemen; that I was merely spokesman for the party on the present occasion, and not master of the company. "Return to your companions. I offer you —— thousand dollars for twenty days' service of your party; and will furnish you with provisions and horses. If they agree, be in your saddles in one hour." I returned to the meson, called out my men, and told them of the proposal of the governor, which they unanimously accepted. I took back their answer. Calling an officer, the governor said to him, after giving him orders concerning our comfort, "Remember, if on your return I hear the least complaint against you, I shall make you an inmate of that prison,"—pointing to the stateprison,—"and I want these men fed on the best that the state affords." I returned to get in readiness to depart. As I entered the meson, good horses, ready saddled, were brought into the yard by Mexican attendants. A guide was furnished me, and I was authorized to summon the troops of the state, if they should be needed. At the appointed time we were cantering along our road after Indians.

At first we followed our road back for a course of ten miles, when we turned off to the northeast one league, where we arrived at the fine hacienda of *Saueda* (willows), where there is a large tank or reservoir of water. There are a great many animals, and large quantities of grain raised here. Five leagues from this place is the hacienda of *Saucito* or "small willow," owned by a priest of Durango.

Over three hundred hundred peons are employed upon it, and the houses and grounds are in excellent style. This hacienda is situate in the valley of the *Guatemepe*, which runs south, and waters several haciendas of the state of Durango.

Following a northwest course, we left the valley, and, crossing a spur of the mountains, entered into the pine regions. Ten leagues from Saucito we came to the hacienda *de los Pinos*, or Pine hacienda, where much stock and some grain is raised. Again crossing some spurs of the mountains, we once more entered the valley of the Guatemepe.

### CHANGING OUR ROUTE.

As in mentioning our Indian adventure, I had no design of inflicting my personal experiences upon the reader, further than to show where it led me into the country, I shall again change my course, and describe another portion of the country lying between Cuencame and the northern portions of Cineloa; crossing the Sierra Madre by a route which will take us through southern Chihuahua, and a rich mineral district, and leaving Durango for a future excursion. Starting from Cuencame, we will take a west-southwest course over a rather hilly country.

### PINON BLANCO.

Twenty leagues will bring us to the handsome village of *Pinon Blanco*, or " white pine nut," a place of some two thousand inhabitants, situate in a very fertile valley. Farming is carried on to a considerable extent, and several dry-goods stores do a thriving business. There appears to be a better class of Mexicans at this place than it is usual to meet with; both more intelligent and more industrious. They are also very courteous and kind to strangers.

### HACIENDA DE MANORAS.

Leaving Pinon Blanco, the road crosses some hills, after which the country opens into plains, dry, barren, and nearly destitute of timber; a little scrubby mesquit being the extent of wood; neither is there much water. Eighteen leagues of this road bring us to the hacienda of *Manoras*, the second in size of all in the state of Durango. Here are kept twenty-one thousand brood mares, thirty thousand head of horned cattle, and one hundred thousand sheep and goats. The proprietor has for sale, yearly, ten thousand mules, which bring in no mean revenue. All this stock is grazed in the owner's enclosure, the whole great farm being walled in. The proprietor is Don José Fierro, a descendant of one of the old Spanish invaders, the property having descended from father to son since that time. Eight hundred men are employed on the hacienda. Besides this immense farm, Don José Fierro is the owner of two large sugar estates in the state of Vera Cruz, and an entire block in the capital of Mexico. His wife is a Spanish lady, educated in all the refinements of Paris. Her ordinary appearance is sufficiently brilliant to dazzle republican eyes, the jewels which she habitually wears being worth ten thousand dollars. Yet to all these riches they have no heir, the marriage having proved unfruitful.

Although this place is so far from the seaports, the decorations of the house, and the luxurious living, might deceive one into believing himself in some great port of the world, rather than on a remote hacienda of Durango. It is a capital place for travellers to recruit, there being everything here to furnish him for a continued journey, and a paradise of rest to the horseman, after hundreds of miles over a barren or mostly barren country.

Continuing on this route for ten leagues over a rough and broken country, we arrive at *San Juan del Rio*, the ancient capital of the state of Durango. Its population is between two and three thousand. Its situation is upon a river, which has fine bottom land for cultivation.

From this place we cross some valleys of good land, and come to, at the end of five leagues, the hacienda of *Santa Guia*, or the "Holy Guide." It fronts a large lake of fresh water, where plenty of fish abound, and several species of wild game. It is an extensive grain hacienda, in a fine situation; and takes its name from its difficulty of access, as in high water this road is the only one by which it is possible to approach the lake. The Rio San Juan flows out of this lake, which is itself formed by a spring in a cypress swamp.

The owners of Santa Guia are four maiden ladies, who have expressed a determination to have none but American husbands. They each have a portion of five hundred thousand dollars in cash, deposited in the treasury at the capital of the state. The ladies are not bad looking, and appeared to be in good marriageable condition!

From Santa Guia it is four leagues to the hacienda *de Guatempe*, from which place we shall follow our old route to *Santiago Pescar*. From Guatempe we follow the valley ten leagues, which bring us to Madeline, or *Santa Magdalena*, a large hacienda where extensive orchards of pears, peaches, oranges, pomegranates, and quinces, are cultivated. From here we keep on over a high and dry country for six leagues which bring us to *Chinicates*. From Chinicates the road is over a high mountain, and descending into a valley, after four leagues you have arrived at Santiago Pescar, named after the Disciple, James, the fisherman. To follow our route we must here turn down the valley to the hacienda *Pescarda*, from there entering the southern pass for *Guadalupe Cabro*, and finding no inhabited country before reaching this last-named place. The nature of the country renders a guide necessary; and the scarcity of grass makes it very hard upon the animals you must use. The only vegetation for animals is the potato top, this being the native home of the potato, where every green thing is sure to be the potato vine. A colony of Irishmen might flourish here, where their favorite root is indigenous to the soil. Water is plenty on this part of the route, and the road very bad, and, as you go west, exceedingly rough.

Following valleys and plains, and alternately crossing some small ranges of hills, we keep getting higher and higher, until about fifty leagues from Santiago Pescar, we have reached the top of the mountain range. Here bountiful Nature has provided travellers with a house, to order, in forming a cave of large dimensions, with an entrance fifty feet in height, opening toward the south. The inside is dome-shaped, and arches over to meet the rocky floor, making a very smooth and polished canopy of solid rock. I should judge this cave to be the result of volcanic action. One of its beauties is a waterfall of about six inches in diameter, descending from the summit, and giving the atmosphere of the cave a most delicious coolness. This would be a delectable summer resort, were it a little more accessible.

Turning down the mountain, toward Guadalupe Calvo, the grass and water are both better and more abundant; but the road is of the worst possible character. Riding is in many places very dangerous, and to dismount and get over them on foot the only proper alternative. No road can ever be made here better than a path for pack mules; or, at all events, it will be safe to say that no amount of business or travel can ever force a railroad through these mountains. From the cave to Guadalupe is about fifty leagues.

From Guadalupe Calvo to *Casas Viejoes*, or *Old Houses*, is thirty leagues, or five days' travel over a bad road, or mule-path; and from Casas Viejoes to *El Fuerte*, twenty-five leagues more, over a road a little better, although the whole distance must be performed on pack-animals, as no wagon-road exists for this journey. But should the traveller desire to go to some farther north into Chihuahua, he must take the wagon or state road at Alamo de Parras for *El Parral*, a business place for traders, and from there to *Bajios*, a distance from *Alamo* of one hundred and twenty miles, and as far as there is any road. From there north, only the eagle can go, or the sure-footed mountain-mule. But from Bajios one may return across the mountains again to *Batopilas*, by a pass somewhat better than the pass of Guadalupe Calvo, yet not sufficiently good to make a railroad through here ever a possibility.

The road from Batopilas to El Fuerte has already been described in speaking of the mines of Sinaloa. I shall now only name the places on the route from Batopilas to Guaymas, Sonora: which are Los Tarumarias mission, El Realito, Los Cueros, Couleura, Tasagadera, Chois, Larro, Real de Alamo; and thence from Alamo to Guaymas.

# STATE OF SONORA.

# STATE OF SONORA.

## ROAD FROM EL FUERTE TO ALAMOS.

Crossing the Fuerte, which is here a tolerably deep river, on the north side is *La Galera*, or the "Corn-thrasher," a small village. From hence the road is over a plain covered with mesquit and fine grass, and without any water for five leagues, until we come to Casanole, a small creek, where the bottoms are full of fine cypress trees. Two leagues farther on is ***Mesquit***, a farming village or hacienda, where a great deal of corn is raised on the river bottoms. This hacienda belongs to the Sonora capitalist, Gomez, who has here a very fine stock of horses and other animals.

Following the bottom for five leagues, we come to *Tapezulas*, a considerable village. The bottom has a great many new clearings, but is generally covered with fine timber.

Five leagues more bring us to *Tangua*, on the same bottom, which is, near this place, a long belt of cornfields, and destined some time to raise an immense amount of grain, as it lies between two good markets—Fuerte and Alamos.

From Tangua the road goes to *St. Vincent*, where the principal object of the traveller's attention is a handsome little church, built on an eminence. Two leagues from this village is a ranche; and two leagues farther on is another farm, which has no resident, though the cornfields were teeming with yellow grain. Here is the last crossing of the Rio Casanole on our road, as we must now follow the course of the *Fraile* or Priest mountains, described in another place.

Keeping at the foot of the mountain, two leagues of rather stony road bring us to the crossing of the arroya *De los Ladrones* ("Robber's creek"), in a very wild spot. As this is the last water before reaching Alamos, and as here is some fine grass and a good shade, it is a very convenient place for repose, notwithstanding the bad reputation of this spot. It was formerly the surprising-place of a band of robbers, who hid in the Sierra de los Frailes and pounced upon the convoys of money and silver going to or from the mint of Culiacan, before the branch mint was established at Alamos.

From this place to Alamos is a distance of three leagues, over a very stony road; and the whole distance from Fuerte to Alamos is twenty-eight leagues. There is a carriage-road from Tangua to Alamos, but it is very long, and through a very bushy and thickly-timbered country.

### ROAD FROM ALAMOS TO HERMOSILLO.

From Alamos we proceed to Agua Caliente, already described, crossing the Mayo river and the creek *Rio Cedro*, or Cedar creek, whose bottoms are covered with cornfields, to *Conicari*. From Conicari we go north to *Sobia*, a village at the foot of a very high mountain, which you must go round to arrive at the village. Some corn and very fine stóck are raised at this place, but water is scarce. At a little distance is a gold mine which was once worked but is now under water. From Sobia it is five leagues to *Mesquit*, a stock ranche, in a large plain between the mountains. Water is kept here by means of a dam in the small arroya which passes the place.

Leaving the Mesquit ranche, we pass over into a valley, where water is to be found, hidden under a large rock, in an out-of-the-way place, where its presence would not be suspected. Here was, also, the remnant of a house and corral, a part of the wall of masonry being still left standing. This country is a fine one for grazing and stock-raising, and lightly timbered; but water is only to be got by wells. One league from the hidden water-hole is a stock farm, upon which there is only water enough for house use, and the cattle are driven some two leagues north, to the well of *Buena Vista*, situated on the same road in a thickly-timbered pass of volcanic hills. The water is here raised by a rude piece of machinery worked by mules, and the well is in a very wild and rather romantic place.

Following our north course, the road opens upon a large plain, at the lowest point of which runs a small stream, l'Alamos (or Poplar, in good Spanish). On this stream is the ranche of the same name, having a rich soil and genial climate, also plenty of timber and excellent grass. Good grain and stock are raised there.

It is proper here to remark, that all the country between the Mayos and Yagui rivers is fitted for stock-raising on a grand scale. The whole country is a pasture, even the mesquit furnishing its share in fattening cattle. On the other hand, however, only some portions of it are capable of being irrigated, on account of the scarcity of water. Where water is to be obtained the fruitful soil richly repays the labors of the husbandman.

From the ranche Alamo the road enters the gorges of the Bayouja mountains. After crossing a well-timbered ridge, we descend into a valley, also quite heavily timbered, and having some large cornfields; but there is water in the arroya only a short time after the rainy season. This arroya has been slightly prospected for gold, which exists here; but, as there is no water to wash it nine months in the year, very little has been done.

Following up this creek, we come to the hacienda of *St. Augustine*, owned by a very clever Mexican, quite friendly to foreigners. This place is two leagues from Bayouja, which is behind the mountain in front of St. Augustine. Going up the creek, we make the circuit of the foot of the mountain, coursing first west, then east, to reach *Bayouja*. Half way up the mountain is a mine of gold and silver, which has been worked for fifty years with different results. It yielded handsomely to those who worked it with energy. The proof of its past richness is that it was this mine which built Bayouja. Since the civil dissensions in Sonora it has been abandoned, in consequence of which Bayouja is now in ruins, and a mere wreck of its old days. All the houses are decayed, and the population dwindled down to a mere remnant. The mine is now in operation anew, and, with quiet times, it will prosper again. The present population is not over three hundred. The Sierra de Bayouja is a very high mountain, and is seen from the gulf.

From Bayouja to Buena Vista on the Yagui is about sixteen leagues, over which distance are scattered only three settlements. The first ranche is in a valley, where there are placers of gold. The second, two leagues distant, is a fine farm, with plenty of corn and fruit, and large droves of horses and mules. It was here that I first met with any of the Yagui Indians. The last of the three placers on this road is hidden in a nook between the spurs of the mountains, where water in holes is plenty, and where the Yaguis hide large herds of cattle and sheep, the sight of which astonished me not a little.

### YAGUI VALLEY.

Approaching the Yagui river the country is barren, except in the immediate vicinity of the bottom, and that is heavily timbered. The Yagui is the largest river of Sonora (not speaking of the Colorado, which hardly belongs to it), as the Fuerte is of Sinaloa. The Fuerte, I believe, carries the most water. To ford the Yagui is dangerous, as the bottom of its bed is full of quicksands, and the channel changes so often that a guide is necessary even in the lowest stages of water.

*Buena Vista* is on a rise of ground, on the north bank of the river. It has recently become celebrated as the battle-field where the troops of Gandara were routed by those of Pesquira. The place has not yet recovered from the destruction which came upon it at that time. Not a house but shows that the "fortunes of war" have visited it—the doors, roofs, &c., being blackened or destroyed entirely by the flames. At the time of my visit all the inhabitants had left it but a few Yagui Indians, who had formerly made this one of their strongholds. A portion of the cornfields were standing. Irrigation only is needed to make this soil yield splendid results in grain or other products.

From Buena Vista two roads offer themselves to go to Hermosillo, the eastern one by *Caumaripa*, quite a farming and trading place, and San José de Pinos, already described. The western route is the shortest, but not much used on account of its being through a country abandoned since the late insurrections of the Yaguis. However, we will go over it.

It is two leagues northwest from Buena-Vista to some water holes over a ridge; then the road enters a pass among hills which show abundance of gold and copper; there is a light growth of timber on the hills, and plenty of grass. Two leagues more bring us to the edge of a large plain where there is water by the roadside; near which are the ruins of buildings, a well, and other domestic fixtures; the road crosses this plain in the centre, going north. All around are mineral mountains; some in chains, some in blocks wildly thrown together, and some standing alone, like lofty columns. On the right is a copper-mine, worked for years with profit, but now abandoned on account of the hostilities of the Yaguis. The road which we tread, once a thoroughfare, is now nearly obliterated. It looks as if years might have passed since any one trod it, and is so dim that a Yagui guide is necessary to conduct us from mountain to mountain, for these are the only road-marks and mile-stones That this plain is of the utmost fertility, may be seen by the size of the mesquit timber and the height of the grass.

Nine leagues from Buena Vista brings us to *Agua Caliente*, on a small knoll, from either side of which flow springs of hot water, which naturally irrigate several thousand acres of black soil of the richest quality. Ths land, if cultivated, would produce any crop, such as corn, wheat, cotton, or sugar-cane ; but, here it lies waste, and there is one fine farm the less in Sonora for that fact. This plain extends eight or ten leagues, on each side, to the mountains; and is, beside its fertility, apparently a rich gold field.

## SAN MARCIAL.

Leaving Agua Caliente, it is eight leagues to *Punta de Agua*, or "water-sink," an abandoned ranche on the San Marcial river. The bottoms of this river are rich, and pretty thickly settled. Going up the bottom about three leagues, we come to *San Marcial*, the centre of several silver mines. The justice, or alcade, is a descendent of a foreign family, and speaks good English, as well as being very courteous to strangers. The silver mines of San Marcial are very productive, and give employment to many miners. San Marcial is also a good market for the produce of the valley. Both market and produce must rapidly increase in this valley as soon as a better class of settlers shall come in to keep out Apaches, who yearly drive away the stock, and keep down the farming.

## SAN MARCIAL VALLEY.

Up the valley of the river, going east fifteen leagues, is the *Haygamé*, a ranche owned by a Chileno. One league farther on is *San José de Pimas.* From here we go north eight leagues to the *Represso*, or Reservoir, a stock ranche, owned by one of the Monteverde, a family friendly to Pesquiera. Six leagues northeast of this place is *El Real de Subiate*, in a broken, mountainous region, without running water or timber. But here is a most celebrated silver mine, owned by the Monteverdes, and which has raised the family to an important position in Sonora. Five hundred miners have been employed in this mine. The ore, like all that in this portion of Sonora, is beneficiated, or worked in furnaces. But little is now done in the mine, the greater part of the work being under water, and a steam engine necessary to dry it.

One league from Subiate is the ranche of *Laguna*, where the water stands in the rainy season; but during the dry season a well must be used to procure drink. A new mine has just been discovered in a neighboring hill, which promises to yield a fair percentage. From Laguna to Hermosillo is eighteen leagues, half that distance being a good level road.

### GANDARA'S MINE.

On the left is situate the mountain of Sta. Rosalia, bold and prominent, in which is the mine of *Santa Teresa*, the property of ex-Governor Gandara, who took out in four years six hundred thousand dollars. The principal "labor" paid as high as eight marks of silver to the cargo of three hundred pounds of ore. The second "labor" yielded sixteen ounces of silver to the cargo; and the remaining labors a poorer percentage. Three hundred peons were employed, but the cost of their wages was trifling, they being all the time in debt to Gandara, who paid them in advance in goods on which he realized a high profit. His large droves of fat cattle, and his ranches only at a little distance, furnished the operatives with rations; and all the carrying was done by his own animals. Paying out so little money, the silver taken out of the mine was nearly clear gain. Yet the thievish nature inherent in the Mexican and Indian, contrived to cheat the proprietor out of large specimens of the richest ore—a sort of tax which no vigilance can prevent.

It is not wonderful that Gandara, so many years governor of a flourishing state, owning mines, and rich in haciendas, should have amassed the colossal fortune that he did. But, as he has many friends, so he has many bitter enemies. To foreigners he has wisely shown himself liberal and encouraging in a degree: also he was a good master among his own people, giving away some things in profusion; but sparing of money, even to parsimony. His parsimony has, perhaps, cost him Sonora, and only untying his purse-strings will ever again set him in his native state. Moreover, Gandara lacks the grand requisites of a chieftain—courage and confidence. To the greatest ambition he unites the meanest cowardice; and such will be the record of him in the histories of Sonora and Sinaloa, should they ever be written. In the different military operations against Gandara in 1848, he, with troops and abundant resources of every kind, showed himself unable to cope with Pesquiera, who was destitute of both. In the siege of Hermosillo, in the blockading of Ures, and at the battle of Buena Vista, the last scene of the inglorious campaign, he shook the confidence of his followers, who while they admired his goodness of heart, despised him for his want of valor;—it being his custom to keep horses ready saddled for his own flight in case of defeat, stationed some miles from the scene of conflict. In justice to himself, he ought to have chosen from among his friends some one more daring to assume the responsibility of command.

Pesquiera, on the contrary, may boast of the chivalry of Sonora. Himself a brave man, and with such friends as "El Cachario" (Don José Maria Morales), he is the terror of the Yaguis, who have said to me, "We never had such a terrible governor." The Monteverde name is also a bright one in Sonora, and also the Elias, any of them were superior to Gandara. The fact that Gandara called to his aid the Yaguis, and allowed them to plunder and burn haciendas and ranches, made him many enemies among the land-owners of Sonora, and alienated the commercial interest, which Pesquiera was clever enough to secure by large loans of money made to his government, which they are bound to support to secure the payment of their loans.

The mine of Santa Teresa, since the flight of Gandara, has been left to the tender mercies of the "Gambusinos," who have worked out the pillars and brought it to ruins.

Half way to Hermosillo, on the north, is *Llano Blanco*, or "White Plain," a stock farm. From Llano Blanco it is ten leagues to the *Realito*, a village at the junction of the

San Miguel and Sonora rivers. From here the road is through well-watered fields, until we come to Hermosillo.

## HERMOSILLO.

Hermosillo is the ancient "Pitic" of the Ceres Indians, who once made this valley their home. These Indians were formerly a powerful nation, but are now dwindled in number to a few hundreds; and these are every day diminishing. The only memento of them which ere long will remain will be their name given to a suburb of Hermosillo—*El Pueblo de Ceres.* Hermosillo is built around a small, bell-shaped hill, called the "Campana" from its form, and because the basaltic rock of which it is composed gives out a clear, ringing sound, when pieces of it are struck together. It is a city of about fourteen thousand inhabitants, and the metropolis of Sonora both in size and importance of position. The produce of the whole valley centres here, making it a place of considerable trade—the fruit and flour produced taking its way, by the San Miguel, to Mazatlan, and thence to all Sinaloa.

The Sonora river sinks itself, six miles below the city, in a large plain, extending thence to the gulf. This plain, which is a magnificent pasture-land, is dotted over with isolated mountains, barren and naked, and so near and so like each other as to make it very difficult to distinguish them. The unavoidable confusion which gets possession of the traveller's mind, preventing his keeping a straight course, is often the occasion of almost fatal bewilderment to even experienced *vagueros*, who have lost themselves among them, and suffered the pangs of hunger and thirst in consequence. Water is to be found only at great distances, and game only near the water. On this plain, also, is a tree of remarkable quality, which can be found at certain distances from the gulf. In the hottest days of summer its shade is *cold*—so cold as to give one a chill after enduring it for a short time. Its name is *itos*.

### ANOTHER ROUTE TO HERMOSILLO.

From *Punta de l'Agua* is a road going west to Hermosillo, passing by *El Chibato*, or "the goat," a stock ranche. A valuable lead of copper ore extends from the Chibato to a *represso* crossing the Subiate creek, which runs into the Punta de l'Agua stream.

Beyond a pass in the hills is *l'Aguague*, a small village of "gambusinos," or miners, who each and all have one or two mines at which they work. Along this range of hills a hundred mines could be named; but they are worked with very poor results, the miners having no means to open them properly, and being content after taking out a few dollars to waste it in gambling; after which they can pawn their animals or tools to enable them to begin work anew, and buy a little supply of provisions for their new effort. Some of the ores pay well. They are beneficiated either by fire or quicksilver. Those which are beneficiated by the *patio* process (patio means *yard*) are very rich; for the people work only a very small quantity of ore, which pays immediately. The ore is brought on the backs of asses to the settlement, where it is broken and ground in the arrastra, then mixed with quicksilver and boiled in a *vaso* or large copper kettle, stirred, and then retorted. The produce is then melted into the bar. The loss by quicksilver is very small, and the whole process is performed with the rudest imaginable contrivances.

The ore to be smelted is broken fine and mixed with certain quantities of either lead ore or any other ore at hand which may serve as a flux. The furnaces are of the commonest description, and being made of adobe rarely last over four or five days, though some, in the larger mines, stand fire for a week. In these worthless fixtures the smelting is done, of ores which, if worked on a larger scale, would pay very handsomely.

West from l'Aguague stands a bold hill, nine hundred feet in height, alone in a plain, and called the "Pillar." It is known as a landmark to the country around. On the south side of this hill is a plain which furnishes a sort of stone that is not affected by fire, but the people are ignorant what use to put it to. About three miles to the north of the Pillar is a ridge of small hills in which three different copper leads have been opened and worked. These hills are at the foot of a high chain of mountains extending west to Guaymas. In those mountains, which are broken, and covered with mesquit and thorny underbrush, is a mine called *Taraja* (a blue bird with a long tail), of extraordinary richness. It was worked in the time of the Spaniards. Incalculable riches are supposed to have been taken out of it. During the revolutionary war it was lost, as the country was but thinly settled about it, and it could not be defended. While I was in the neighborhood inquiries were making upon a plan of the mine which was sent from the city of Mexico. A large party was organized with the purpose of prospecting not only the mine but the mountains around. The project was a failure, however, as the time allowed was insufficient. It would require a month at least to make a thorough investigation of the prospects here. However, several leads of silver and copper were discovered. In these mountains the mescal root abounds, and red deer and wildcats are plenty.

Two leagues northeast of l'Aguague, is *La Villa*, a stock farm, in a rich mesquit bottom; but the forays of the Apaches have left it in a nearly ruined condition. On the same course, five leagues farther, is a represso and stock-farm, about four leagues from Hermosillo, as we enter by the Pueblo de Ceres.

## GUAYMAS.

Returning to Punta de l'Agua, we will go west down the stream, which forms a fine valley, but wants water to irrigate it. Here the mesqnit timber is very large. Ten leagues bring us to *Noria*, where considerable wheat is raised and fine stock is grazing on the plains. At the mouth of the river is "old Guaymas," four leagues south of the present port of Guaymas, now considered the best harbor of the Gulf of California, being safer than Mazatlan. It is a strong military position, and, if fortified and properly defended, would withstand a great force. It is strong by water as well as by land. The population is not half that of Hermosillo, which is connected with it and Alamos and El Fuerte by a good wagon-road. Its trade every day becomes more important, as the resources of the country become developed; and it is confidently predicted that an Atlantic railroad will reach it in a few years, and that the rails will also traverse all the western coast of Sonora and Sinaloa. Guaymas must become the largest city of the coast, and especially when the Yagui valley shall have been opened to agriculture.

### ROAD FROM ALAMO TO GUAYMAS BY SANTA CRUZ.

Five leagues south of Alamos is ***Minas Nueras***, silver mines of great richness, but now in the hands of the ***Gambusinos***, who work them in their shiftless and thriftless manner. North from these mines is *Navojoa*, with a population of five thousand inhabitants. The town is situate on the Mayo bottom, which large and fertile field is yearly sown with more than one hundred fanegas of wheat. Its people are Mayos and Mexicans, who carry on some little trade in grain. Following down the river sixty miles, we come to Santa Cruz, or "Gintivis." The whole length of the valley is a valuable tract of land for raising either fruit, wheat, or corn.

*Santa Cruz* is a port of the gulf of California, a small harbor of the second class, surrounded, however, by a fine farming country. Several foreigners have opened sugar farms in the valley, but the hostility of the Indians did not permit them to enjoy their possession. Whenever foreigners shall settle in numbers sufficient for self-defence, many productive farms and comfortable homes will be made along the Mayo and Yagui valleys.

From the Mayo we cross over a high tableland, dotted with mountains toward the east, passing several stock-farms where both horses and sheep are raised, reaching the Yagui after a stretch of seventy-five miles. *El Cocori* (the rooster), is situated on the Yagui, forty miles below Buena Vista. It is a military post, kept by government to awe the Yagui Indians. The troops, two hundred in number, are commanded by a German officer in the pay of Pesquiera. El Cocori is a large farming place; extensive "sequias," or ditches, carrying water for irrigation, extend all over this portion of the valley.

Three leagues down the river from here is *Baccan*. This is one of the four principal towns of the Yagui nation, where they meet to transact business in a general assembly. It is situate on the south side of the river. There is a church here, and considerable trade.

## TOURON.

Crossing to the north side of the river, seven leagues of travel brings us to *Touron*. The road lies among thick timber, where the mesquit grows taller and larger than usual, the branches so linked and interwoven as to form a continuous natural bower of shade, under which you may travel all day, secure from the sun's rays, that in this region are very powerful. At Touron the river makes a bend in the form of a horseshoe, and in the half-enclosed space stands the town, built on a small flat elevation of about forty feet. All the surrounding country is level, and for a hundred miles not a rock is to be seen, which fact makes this little knob the more curious, it being composed of flat stones. In the midst of the little town is an old church, built by the Spaniards, in a good state of preservation. Standing on the elevation on which Touron is situate, the river—east and west—is visible for a long distance, bordered two or three miles deep with thick canebrakes, back of which is the heavy mesquit bottom, of immense fertility. It is one of the richest soils I have ever seen. The town is nearly locked up from the surrounding country by a lagoon, that crosses the opening in the horseshoe, leaving only a narrow mule-path for egress or ingress.

It was at this place that I witnessed a feast of the Yaguis—partly of a religious and partly of a political character—being performed while mass was celebrating, from which strangers were carefully excluded. At some personal risk, however, I was enabled to see the celebration of the rite. The old church standing so prominent on the hill appeared venerable enough; and the spectacle, absurd as it looked to me, was one that worked up the feelings of the Indians to the highest pitch. In front of the church was a track, worn like a race-course, up and down which paced two milk-white horses with riders. Between the two horses, which walked side by side, was a man in a mask, with a long beard like a goat's, horns on his forehead, and a long tail behind. He was making the most frantic gestures, and uttering terrible and horror-exciting cries, vainly endeavoring to loosen his hands, one of which was bound to the pommel of each horse's saddle. The horses were wild with excitement, frothing, stamping, and pawing the dust, yet all the time keeping the same distance from each other, as if acting a part.

In front of the church was another figure, with a masked face, dressed in white garments, striped with red; he had a pair of wings attached to his shoulders, and, in his hands, bow and arrows. As the first figure personated the devil chained, so this last one represented a guardian angel, protecting the entrance to the church from the devil, who was vainly essaying to enter whenever he came in front of the door, and shouting in the Yagui tongue, "Tahamihenemica bahmin!" (Give me water!) while the angel repulsing him cried, "Kaita bahmin" (There is no water). The scene was repeated all through the night; while a whole set of Yagui instruments made of canes, drums, violins, harps, and numerous infernal-sounding instruments besides, kept up a most diabolical noise. While one portion of the Yaguis sung, another portion was on their knees praying and kissing the ground. The whole meaning and intent, as well as I could understand it, was to keep the devil from getting into the church; and absurd as was the spectacle, it excited in me a lively interest.

I enjoyed the fine view of the valley which is had from Touro—of the river, the lagoon, and on the north a chain of high, rugged, volcanic-looking mountains. A Yagui chief confided to me the fact that his people owned in those mountains a valuable silver mine, whence they obtained the metal for their little ornaments of crosses, rings, ear-rings, &c.; but that they were all bound to secrecy concerning its location. Even could it be discovered, the hostility of the Indians would prevent its being worked, except by a large force, unless some way of obtaining their sanction could be devised. There are many mines of lead, copper, and silver, in those mountains, waiting the needful energy and means to bring out their wealth.

From Touro, ten leagues of road, through heavily-timbered lands, where canebrakes alternate with large mesquit, and past some small Yagui villages, where you may see herds of sheep and cattle, and houses made of cane, in the midst of little orchards of fruit, bring us to *Bekan*. This is a village of pure Yagui population, if we except a few Mexican traders. It is located one league from the river, and is furnished with water by wells.

From this place I took a northwest course to *Belen*, another Yagui town, standing on the old bed of the Yagui river, which now runs twelve leagues farther south than it once did. Belen was built when the river ran beside it, and it is consequently an old town. It is a place of no present importance, its population having left it with the river. Some stock is kept here, and some grain raised, but not in any large quantity. The pueblos, or towns of the Yagui nation, four in number, are Baccan, Tauro, Bekan, and Belen; but the whole number of the Yagui people scattered over the country is probably thirty thousand. The country they inhabit is capable of extensive cultivation, in grains, sugar-cane, rice, or cotton. Two crops of corn are raised annually, this being the most productive land in Mexico. It is my opinion that the valleys, not only of the Yagui, but of the Mayo and Fuerte, will compete advantageously with the Mississippi valley or Texas lands, in raising cotton, rice, and sugar-cane. The climate is healthy and delicious, the heat moderated by the gulf breezes. The air is dry, preventing malignant fevers. All the Southern fruits will grow well. Fish of excellent quality inhabit the river, and the oyster-beds at its mouth are justly celebrated for producing large quantities of excellent oysters, which will eventually be a source of trade. The opening of the mineral regions will, in the course of a few years, furnish a good and secure market for all the productions of this fruitful country. The planter will have, besides, all the facilities of river and gulf transportation to enable him to dispose of his produce, and for all the necessities of trade of every kind.

*Los Fluaximas* (named from a kind of wood resembling hickory) is situated fifteen leagues northwest from Belen, one mile from the coast, and only thirty from Guaymas by water. It carries on a small trade with the latter place, furnishing it with fruit and vegetables, wood, fish, and oysters. It has some fine orchards of oranges and other varieties of fruit. This place is owned principally by the "Manzanas" family of Guaymas. One member of this family was executed in California, for nothing good, probably; but the family have, in consequence, a decided dislike to foreigners, and to Americans especially.

Five leagues northwest from this village is *Chiltipin* (Cayenne pepper), a stock farm, not far from the coast, and of very good land.

From here to *Los Milpas* (field gardens) is a very fine country, raising vegetables in great quantities, also a large amount of wheat. Four leagues more bring us to the "ranche of old Guaymas," where are still visible the traces of a much larger town than now exists in that place. From Los Milpas the road passes many large houses in ruins, broken and burnt by the Yaguis and Gandarist party, in political revenge. Three leagues more bring us to the present port of Guaymas.

About one league northeast of Guaymas is *Bachucobampe*, in an indenture between the hills. Nothing is to be seen here worth mentioning—only some oranges and vegetables being raised here. In general the land just around Guaymas is dry and barren, and of a volcanic appearance. At the same time, however, where there is water the soil yields bountifully.

## THE GULF COAST.

Next to Guaymas and the port of Santa Cruz, the port of *Lobos* (wolf) is the most important. It is about one hundred and fifty miles north of Guaymas on the coast, in latitude 31° north. In reaching it by water nothing of interest is to be met with except Tiburn island, which is but a dry and mountainous spot, furnishing nothing but a little guano of inferior quality. The Ceres and Pa-Pagoe Indians frequent it for fishing.

But, taking the land route to Lobos, passing by Bachucobampe, one league from Guaymas, to the ranche of *Cavello*, a distance of five leagues, we will follow this course three leagues farther, to *Nocha Buena* (" Christmas night") ranche. From Nocha Buena we turn, northwest, through a range of small hills of a volcanic appearance, and, nine leagues upon this course, come to the stock-farm of *Taskiot*, a Ceres word for the root of the mescal shrub. The residence on this ranche is a large square building, with towers at each corner furnished with port-holes. This show of defence was not intended for the Apaches, but for the Ceres, who for years pursued a war of extermination against the Mexican settlers. Fire and poison were used unsparingly in their work of destruction, and with a vengeance fairly demoniac. The poison which they used upon their arrows was extracted from a native shrub with a slender stalk and crimson blossom, the deadliness of which is certain and awful. Notwithstanding their animosity, they were beaten in many hard-fought battles, and finally succumbed to the Indians' manifest destiny of extermination. Only a few miserable remnants remain, in the desert tracts that border on the gulf below Hermosillo. I saw a few of them at Taskiot and Port Lobos. They were tall, slim, and well-formed, but had a pinched and starved look, which told of suffering from the insufficient resources of that part of the country they are now forced to occupy. But very little game comes in their way; the wild fruits of the country, with fish, form their principal subsistence. They carry on a sort of exchange with the ranches, offering dried fish and baked mescal heads for a little corn. The Ceres women, as usual with Indian tribes, are stout, fat, and plump. They perform all the labor, and are by no means prepossessing in their personal appearance. The Ceres houses are miserable cane-huts, on the sea-shore.

Taskiot is in a large plain, surrounded by hills timbered with small mesquit and a few *itos* trees. Ten leagues from this place, in an easterly direction, is the *Gargouss*, a ranche situated on the Sonora river bottom, but without water, except in wells, as the river sinks several miles above it. In this direction is some fine timbered bottom-land, the soil being very rich.

One league west of Taskiot is *El Rancho del Carissal*, in a canebrake, as the name implies. Excellent crops of corn and wheat are raised here; also oranges and figs. But a short distance from it is the land-locked bay of *Boukana*, so called from a class of small coasting boats, named boukan, which boats are alone able to enter it from the gulf, the high, reddish hills nearly closing together at the entrance, on the north side. Near this entrance, and where fresh water springs come out at the foot of a great hill, is a village of Ceres Indians.

The road to Port Lobos from here lies directly north, over a level country covered with mesquit and itos, and where the gulf breeze is always at play. This plain is dotted on all sides with some isolated hills and mountains. Water is scarce and hard to find, as in all these plains; but gold is said to be everywhere over the whole surface of the country of a very fine quality.

*Port Lobos* hardly exists as yet as a place of trade; but its situation so far north, and in a direct line with the point in the Sierra Madre, where the mountains *may* be crossed by a railroad from east to west, makes it a place of considerable importance in our contemplation of the future. This is also on the available and direct route for the exports of the San

Ignacio valley, and the northern parts of the valleys of the Sonora and San Miguel. When opened as a road, all the exports of Arizona must find an outlet here besides. This port is the only one between Guaymas and the mouth of the Colorado.

Going north from Port Lobos toward the mouth of the Colorado, our road lies over a barren country, where *choyal* is the predominant shrub, or vegetation of any kind. This choyal is a kind of cactus, with long sharp needles; it grows a fruit reddish or white, according to the variety, on which Indians and rabbits love to feed; the latter especially are found wherever the choyal grows. Mesquit abounds in all the valleys. Water is scarce, as all the streams which take their rise in the mountains dry up before reaching the gulf; and the traveller can only find a supply of water in the lagoons between the mountains on the coast. Several places may be noticed where gold has been washed along these hills. This country is principally settled by "Pa-Pagoes," who are hunters, and have their villages wherever there is water. They are brave, and good shots: are tall, strong, and warlike in appearance. Recently the Mexican government has employed them to hunt down the Apaches, those terrors to all Mexicans.

As we approach the Colorado, the country has a poor, low appearance; higher up the river are some fine valleys of mesquit, where the land is rich; but near the mouth of the river, and bordering on the gulf, is a desert tract of a hundred miles in length.

Going southeast once more, fifty miles bring us to *Sonorita*, the northernmost settlement of Mexicans in northwest Sonora; it is a ranche on a fine stream of water, in a hilly country covered with mesquit timber. Gold-washing is carried on here in the valley, and on the plain, in the primitive manner of the pan, or wooden batea: some of the dirt is carried to the stream to be washed, and some is taken out by blowing away the fine sand; the dirt must be dried and pounded, the process being very tedious, besides wasting all the fine gold, the heavier particles alone being retained.

### THE PA-PAGOE VILLAGES.

After leaving Sonorita, I went south to *Arcitorae*, a village of *Pa-Pagoes*. The journey is ten leagues, over broken plains of gravelly quartz, mixed with clay the whole distance. It is an extensive gold-field, and would be found to pay well, could water be obtained; but no running water exists here; yet the numerous excavations show that work has been done even here.

South of Areitorae, about three leagues, a chain of mountains runs from east to west. Entering a cañon which opens near the village, and following it south ascending the mountain, when you are at the very crest, overlooking the valley north and south, you are right upon a quartz vein which follows the direction of the chain. This ledge has been worked down to some depth. The front of the mine opens toward the east, and there are visible the ores as they were taken out and abandoned. It is a gold-bearing quartz, and the extent of the works shows that the mine must have been one of some richness.

Areitorae is watered by a spring, which seems to be the only water in its vicinity. The Indians seemed to be in good circumstances, were well dressed, and had good houses. As they have no means of farming, they must draw all their support from gold-washings. They probably number one thousand, this being one of the most considerable Pa-Pagoe settlements.

### GUADALUPE-PA-PAGOE.

From Areitorae I travelled ten leagues southeast; the first five leagues being over a large plain of fine grazing land, timbered with mesquit. At this distance the plain was crossed by a mountain coming from the east. I therefore turned to the right, and going round it, followed its south base until I came to the Pa-Pagoe village of *Guadalupe*. Here I found about five hundred Indians—men, women, and children—all occupied in digging, pounding and blowing dirt, to extract the gold from it. Here, also, were a number of Mexican traders, with bread-stuffs, sugar, and other necessaries, with which an exchange of gold-dust for their provisions was every afternoon made. Each day's work was bartered off as it was earned, which gave me an opportunity of knowing just how much a day's work amounted to. I thought them doing very well, considering the fact that their tools consisted of pieces of broken hoops, old knives, and sometimes a sharp-pointed stick. Their wages amounted to from one to five dollars per day, and the gold was of the coarse kind. In the evening, dancing and frolicking were the order of things, and all seemed to enjoy careless happiness. I conversed with the principal chief, who spoke Spanish, and was passably intelligent. I asked him, where the diggings were so general, which were best—those in the hills, the valleys, or the plains? He assured me that his people found no particular difference, but succeeded about equally well everywhere, the country appearing to be universally furnished with the precious metal in about the same proportion. This chief treated me with great kindness and liberality, taking pains to gratify my curiosity in all ways. I witnessed a burial of one of his people, which was very peculiar, to me at least. The dead are placed on the *surface* of the ground, which has previously been scraped smooth, with the face toward the north-star; twenty days' provisions of food and water are placed beside it; after which the whole is covered with a great pile of choyas, which are said to keep off wolves and other wild animals. The last deposit in the burial-ground had been of a gifted Pa-Pagoe, who was executed on a charge of sorcery and commerce with evil spirits: so much credit do all barbarians give to this sort of witchcraft. The chief's name was "Ochoa." He stood six feet and two inches in height; good-featured, and about thirty-five years of age; and seemed to be aware of the ignorance of himself and people. He desired to show me a novel mode of hunting, which is as follows: For finding deer, his people use a preparation of red earth, which they call *La flor de tierra*, or "the flower of earth," which resembles red precipitate. It is kept in a bottle, and possesses a particularly strong odor, peculiar to the female deer when in heat. On arriving at the hunting ground, they unstop the bottle—having previously concealed themselves. If any deer are present or near, the smell is sure to attract them to the spot, when the hunters shoot them, a practice at which they are very expert.

I saw no water on the surface in the vicinity of Guadalupe; but water was taken out of an arroya, from three different holes about ten feet in depth each. The timber here is worthless either for mining purposes or for machinery.

## SONI.

After leaving Guadalupe, I travelled up the bed of the arroya about four leagues, the whole distance showing signs of a gold-bearing country. Going through a pass of the mountain, I came to the valley of *Soni*. Three leagues from the pass stands an old gold-mining place of the same name. Soni has once been a large village, with a considerable population and trade. Ruins are standing which show that mining was once carried on extensively at this place. The only water I found here was a well, which supplied the whole population of about eighty Indians and Mexicans, who lived by gold-washing. The mines in the vicinity were under water in their lowest works.

## CABONA.

From Soni I proceeded southeast to *Cabona*, over a chain of mountains, the road being very rough. This is another Pa-Pagoe village, in a high state of cultivation, and situate on a fine stream of water; its population is about five hundred. It was at this place that the unfortunate expedition of Crabb and his confederates was overpowered by the inhabitants of this valley, the expedition having entered it by the same road I have so lightly sketched. Cabona is on the Altar, or San Ignacio river, which loses itself some seventy-five leagues eastward; and also on the road from Arizona to Port Lobos, from which it is distant only forty or fifty miles. South of Cabona some good copper-mines have lately been discovered, the nearness of which to the coast will make them valuable.

## ALTAR.

Going east I followed the San Ignacio, which has some good land not much improved, having only a few unimportant ranches on the south side. At the end of four leagues I arrived at *Altar*, on the river, a town of more than two thousand inhabitants. This is the first Mexican town one encounters coming from the north. It is a good resting and recruiting place for the traveller, as the living here is both inexpensive and good. Fruits are plenty, and a large amount of grain is raised. This is a presidio, and a garrison is stationed here, quite as much to keep the people in subjection as to resist filibuster invasions from California or Arizona, the latter being the ostensible purpose. I was informed that there were gold-placers in the neighborhood; but of this I did not personally assure myself.

Five leagues south of Altar is *Sienega*, a stock ranche, better known as an Indian "Mission," and where there is a church of passable appearance. The interest of the place, however, is in its placers, which must have been considerable; and many persons are still employed in washing the gold, which is of the coarse kind.

Two leagues southeast of Sienega is *Los Flanos*, a plain, which is a gold placer of great value. The difficulty has been to get out the water, as the gold, which is very coarse, is found in quicksands. Machinery and timber are necessary to work it to advantage; the miserable means employed by the Mexicans and Indians cannot make it very profitable. Timber could not be got, probably, except from Guaymas, or the head-waters of the Altar river. When Port Lobos shall be really opened to navigation and trade, these placers, which extend over a hundred miles, will create an excitement productive of worthy results. The horn, spoon and batea process will then be abolished, or resorted to only by the poor and ignorant of the inhabitants, who can do no better. These placers have evidently been worked a good deal; but only in this tedious, insufficient manner, which produces but slow results.

Up the Altar river, six miles from the last-mentioned place, is *Alquitoa*, a small village of farmers and stock-raisers. Still farther up the valley are the placers *Atil*, *Tubutama*, *Sarie*, *Busona*, and *Agua Caliente*. The two last-named are surrounded by a mountainous region, heading toward the "Arrivaca" mines of Arizona. These towns are in a pretty good agricultural country. *Sarie* is the place for which Raousel de Boulbon had contracted with the Mexican government. It is in a fine farming country, and every way fitted for a colony. In the Spanish times it was cultivated by missionaries.

*Tubutama* is in a very fertile situation, and raises great herds of cattle, and large quantities of grain and vegetables, which find market in the mines of Arizona. Both sides of the San Ignacio are mountainous, and timbered with woods useful for the builder and miner. Veins of silver and lead are to be found all through these mountains, destined one day to greatly enrich this valley; but never will they be *rich* until they are *free* from the tyranny under which they now suffer. In the mountains are the evidences of ancient mining, but of the richness of these mines I cannot speak.

### TO HERMOSILLO AGAIN.

From Altar, to go to Hermosillo in a straight line, we must pass through a very dry and nearly level country. The distance to *Las Cruces* is twenty-five leagues, passing by the *Alameda*, a small stock-ranche on an arroya of the San Ignacio. Water is here procured by holes sunk in the bed of the stream.

Las Cruces, which takes its name from four mountains so disposed as to form a cross, is fifteen leagues from Alameda, and likewise in a dry situation. A represso furnishes water for the stock, and a well is used by the people of the place. This must have been an extensive ranche formerly, and still has on it three thousand head of cattle. But the horses are few, the Indians every year running off a drove of horses and mules. Much trouble is had with the Indians in this region, the caballados being numerous, and the ranches far apart. There is, besides, very little travel; and the facilities for escaping into Arizona and New-Mexico are so great, that, knowing they will not be followed over the frontier by the Mexicans, they are perfectly audacious in their proceedings.

Taking a southern course for fifteen leagues more, I travelled over a dry, barren, sandy, God-forsaken country, to *La Poza*, a stock farm, where water is procured by wells, as the name implies, the labor being performed by mules, who draw the water up into troughs for the cattle. Not far from this place a party of Americans were attacked by Apaches, and one of their number killed.

Three leagues south of La Posa is *La Noria Verde*, or Green Well, where the well is sheltered by beautiful green trees, which gives the place its name. This is a ranche, owned by Don Manuel Inigo, formerly the rich capitalist of Sonora, but ruined by the revolution.

Three more leagues of road bring us to *Toireon*, on the San Miguel, or rather a branch of that river; and from here three leagues to *Labor*, whence we descend the river to Hermosillo.

### ROAD EAST FROM ALTAR.

From Altar, going east, striking the San Ignacio river, and following it, after passing the *Alameda* spoken of before, the road takes us forty miles to the Pueblo *Santa Ana*—passing by several ruined or deserted ranches, and a few inhabited ones, showing the ravages of the dreaded Apaches, who combine with what a bad government can do to desolate the country.

Santa Ana is a village of six hundred inhabitants, who live chiefly by agriculture. A large extent of bottom-land is irrigated, and yields fine crops of both corn and wheat. The fruits common to this part of Sonora are cultivated here in abundance. Only a short distance below Santa Ana the San Ignacio loses itself in the sand.

Continuing along the valley, over a luxuriant and well-timbered bottom-land, where the mesquit is of an extremely fine quality, we pass a small new settlement called *Santa Martha*. Some clearings and other improvements are going on. Here the soil is admirable, water plenty, and irrigation easy and cheap.

### MAGDALENA.

Four leagues from Santa Ana is *Magdalena*, where the Virgin has a shrine held in great veneration. Magdalena is a large place, and must formerly have been much larger than it now is. The same dilapidated look of other Mexican towns is noticeable here. Houses in ruins, fences badly kept, a church that threatens to fall down every time mass is said in it, dirty streets, and a general appearance of decay and despair, show the dearth of all energy or ambition in Mexico. It needs regenerating with new blood. The population of Magdalena is rather transient in its character, as it is a place of holy pilgrimages from all parts of Northern Mexico—from Sinaloa, all Sonora, and from Messilla and Chihuahua. From all parts pilgrims gather—some for the remission of terrible sins that make the conscience sick, others to be cured of wearing or painful diseases of the body. At the time of the feast of the Virgin the roads leading into Magdalena are crowded with men, women, and children, on foot, on horses, and on donkeys. The cunning Apaches gather in these days a bloody and rich harvest of murdered Mexicans; and it not seldom happens that some sinner, going to be relieved of a burdened conscience, meets a fate as sudden as it is dreaded by the faithful Catholic who dares not die unshriven.

Those who come to Magdalena, no matter what their errand, bring money and trade along with them, and it is a brisk business place, not wanting in amusements. Dancing is a principal ingredient in a Mexican's religion, as it is in a Shaker's, though the Mexican's dancing is somewhat the more cheerful. The prefect of all this portion of country resides at Magdalena; but the place, notwithstanding this fact and its holy character, is the worst a stranger can fall into, being full of gamblers and horsethieves. The people are not at all friendly to Americans, and delight in insulting or taking advantage of one in any way they can. The population of Magdalena is over one thousand.

There is much farming in this neighborhood. Wheat, corn, and fruits are abundant. Grapes are largely cultivated, and yield well; also figs, oranges, and pomegranates, which grow to a fine size.

Following up the river five miles, we come to *San Ignacio*, on the river of that name. It has a population of about five hundred, is an old town, rather neat, and in a fine situation. The inhabitants, moreover, are very polite to strangers. Their subsistence is gained by agriculture, having very good land about them, and plenty of water with it.

### NORTH FORK OF SAN IGNACIO.

From San Ignacio, two miles up the stream bring us to *Terrenati*, with a population of five hundred, mostly farmers. Two miles above this place two small streams unite, to form the San Ignacio river. Following the northwestern fork of the river, the road lies along the creek bottoms. As we advance the mountains are getting higher, and the valley in some places is confined to the bed of the stream. Eighteen miles up we arrive at *La Casita*, a ranche, and the place where lumber is taken out of the mountains for the Hermosillo market. The timber, which is here converted into lumber, is white and black oak, pine, and cedar; and it is carried the whole distance to Hermosillo on wagons. The creek bottom at this place furnishes fine grazing, and the soil would raise good grain. Population is small.

Keeping up the stream to its head, we come to *Agua Sarca*, or "spring water." There is no settlement here; but on the west, where the stream heads up in the mountains, and where, also, the Altar river heads, there is a celebrated silver mine called *Planchas*. It is an old mine, in a rich mineral district, but, on account of the hostility of the Apaches, is abandoned, and awaiting for better days.

Passing right over the mountains from Agua Sarca, it is thirteen miles to the monument which marks the Arizona and Sonora line. The monument is close by the *Nojales Ranche* (nojales signifying walnut). Ten miles from here is *Calabazas*, in the valley of Santa Cruz. It is the property of Gandara, and is now the residence of an American custom officer.

### EASTERN PRONG OF SAN IGNACIO.

This fork of the river is better settled than the other. Two miles above the junction is the town of *Imoris*, with a population of eight hundred, though now greatly inferior to its former size, on account of the ravages of the Apaches. Every town in this part of Sonora shows their devastating traces. Imoris is a fine agricultural town, exporting much grain to the mines of Arizona.

Eight miles above this place is *Babesagui*, a ruined village, with an insignificant population. Still higher up the stream is *Corespera*, which was once of some little commercial importance, made so by the working of the neighboring mines. Following the stream to its rise, the road takes us on to *Santa Cruz*, an old presidio, on a stream of the same name, whence we will turn back toward Guaymas.

## ROAD FROM GUAYMAS TO MAGDALENA.

The distance from Guaymas to Magdalena is two hundred and fifty miles. One league from the port we pass Bachuchibampa, which supplies it with fruit and vegetables. From here the road goes over a very uninviting country—dry, barren, and covered with the thorny bushes of the cactus in every variety—to *El Cabello*, a ranche distant seven leagues from Guaymas. The country here is also very dry, and the water for the stock has to be raised out of a well. Some grains, in small quantity, are raised in this ranche in the rainy season. Keeping on over the same uninteresting country for three leagues more, we come to *Noche Buena*, a place of no importance, except as the *relayo* for stages. The water here is scarce and brackish. From this place the pasturage is good to *La Sieneguita*, a large stock-farm owned by Don Francisco Aguilar. The large flocks of sheep are tended by Yagui Indians. There are some fine cabelladas of horses and mules, and large numbers of horned cattle. The country is covered with mesquit—being a large plain like a valley. On the south side is a chain of mountains, dry and barren, but having rich leads of copper in them, besides silver and lead.

From La Sieneguita the road goes north over this plain, crossing an arroya called *El Tajon de Bota*, or "boot-heel creek." After crossing this dry creek-bed, we surmount a small rise of hills; and three leagues farther, reach the ranche *Del Tessal*, owned by a Frenchman. Besides the stock raised here, some grain is grown; but not so much as there might be, for the soil is well adapted for planting. The farm is managed by a major-domo, who has an interest in the cattle. This major-domo is an old man of Indian descent, a strong *Gandarista*, and fond of telling of the Indian fights of his younger days. I passed several very pleasant days at his house, and the fare, simple, yet excellent, was made far more so by the good humor of mine host.

Crossing some ranges of low hills from La Sieneguita, and finding the country similar, only with improved grazing as we advance, eight leagues of travel bring us to the ranche of *La Palma*. In front of this ranche rises a curiously-shaped mountain, which serves as a guide to it from a great distance around. Beyond this mountain, toward the northeast, is a fine mesquit bottom, in the midst of which are some noble fields of corn and wheat. This bottom is called the *Gargouss*, and the water is only a foot from the surface. The "Palma" is the property of Don Juan Buelna, who has several large haciendas and ranches in this part of the country. The water for the caballada is kept in a reservoir, and several wells are dug over the place for watering the cattle. One hundred peons perform the labor of the place, which is quite an important stock-farm. The location is valuable, besides, for the leads of copper in its vicinity, from one of which great quantities of ore have been taken.

Two leagues south is *Lavisadera*, or the "sign-post," a mine of *tesputete*, a flux of the silver ores which are found in the vicinity, and valuable to future operators in the minerals of this region.

From La Palma to *El Poso*, or "hole," is six leagues. This is a well-enclosed hacienda, owned by a priest, who keeps large numbers of horses and mules. The grass of this place is not always sufficient for the animals, and then mesquit has to be felled for their subsistence. Four miles south, among some hills, is a *represso*, where the cattle are kept to be watered in the dry season, when everything is scorched up at El Paso.

From El Paso to *El Posito*, a small ranche, is three leagues over a very dusty country. Four leagues more bring us to *El Pueblo de Ceres*, a suburb of Hermosillo, on the south-west side of the Sonora river. The green fields at this point form a beautiful and refreshing contrast to the barren country we have just traversed. Past Hermosillo, and following the left bank of the river, the road lies among the most delightful verdure. Fruit-trees and waving grain are on every side, showing the richness of the soil, which is indeed unequalled in the world. Nothing is wanting to make it produce more than any other but irrigation, as the well-irrigated fields attest.

The first place of interest is *San Juanique*, at six miles distance from Hermosillo. Just before coming to it, the Sonora river parts toward the southeast, and the San Miguel to the northeast. It is the latter river which waters San Juanique. The population of this village is about four hundred, and the neatness of the farms shows its prosperous condition, which is everywhere evident.

Eight miles from here is *L'Alamita*, the road to which is over a beautiful country, with a fine soil well cultivated. Here is a flouring-mill, which manufactures the best flour in Sonora, both for excellence and fineness. It is the property of Don Manuel Inigo, spoken of before. L'Alamita has a population of three hundred, and is a lively, thriving little place, in a good situation for future growth. The country adjacent produces more grain than will supply the mills, and large quantites of wheat are exported.

### LA JAVALIN.

Eight miles up the San Miguel brings us to *La Javalin* (wild hog), a fine little place, depending on the *Labor* three miles away. The Labor, which signifies a place well laid out, or nicely worked, is a hacienda for mining; the largest, perhaps, in Sonora. The population, including La Javalin, is over six hundred. The estate is watered by the San Miguel stream, the water being taken everywhere that human exertion can take it. Trees, both for fruit and ornament, are planted with much taste. Good substantial fences of stone or wood enclose the grounds. The houses are well built, being so placed as to form a hollow square, which square is planted with cottonwood trees, making a fine shade. On one side of this plaza is the mansion of the owner, with a magnificent garden attached. American machinery of every kind is used on this hacienda. The property has lately changed hands, and now belongs to the judge of the supreme court of Sonora; while La Javalin has become the property of Signor Cuvillo, a friend of Pesquiera's. It is said that the wheat crop alone markets thirty thousand dollars—this, besides a second crop of corn reserved for the peons. It is one of the *living* places of Sonora, and does one good to dwell upon, as it proves what the spirit of enterprise could accomplish, and furnishes an example of both good taste and thrift worthy of being followed by the Soñorenos. As in other instances of a still living spirit among the people, it must be stated that most of the improvements are due to foreigners and Americans, some of whom now superintend the estate.

One league distant from El Labor, up the stream, is the farming village of *El Torreon*, with a population of three hundred. From Torreon a road goes, in a northwest course, to Magdalena, but the usual route is up the San Miguel, which course we will follow.

### LA MAGUINA.

The first four miles bring us to *La Maguina* (the machine), a small manufacturing village. Rather, it *was* a manufacturing village, of which this is the history: Don Manuel Inigo, at a cost of four hundred thousand dollars, employed American mechanics to put up a cotton factory at this place. The mill was a success for four years, during which time American operatives were kept at work in it; but the Don thinking native labor would do as well, made the change, dismissing all the foreign employés. This proved, however, a fatal mistake—the Mexicans proving unable, either by mental quickness, or physical activity, to keep up with the requirements of the manufacture by modern machinery. Consequently the mill went down, and four hundred thousand dollars were lost, besides teaching a good lesson to other Mexicans, desirous, like the Don, of showing what Mexican enterprise could do. The people of Mexico are lacking in the intelligence necessary to make machinery useful. Hand labor must be practiced wherever the common people have never been trained to understand mechanical principles, and especially where their natural indolence forbids their making the effort to understand. The village of Maguina has a population of three hundred, engaged chiefly in farming, which pays well, as the soil is rich.

### SAN MIGUEL DE HONASITAS.

Three miles above Maguina, on the San Miguel, is situated *San Miguel de Honasitas*, and half way between these places is a mine, known to the people of the country as *Soldados*, or "soldier's mine," from having been opened and worked by soldiers of the old Spanish times. It is reported that great riches were extracted from its depths, though now it lies silent and desolate. An air of superstition surrounds it, so terrible to the people that no one now attempts to work it. It is said that some attempts have been made from time to time, but the miners were always frightened away by hearing noises as of soldiers in dire conflict, issuing from its subterranean depths. The story was told me in the most perfect seriousness, and I have no doubt was implicitly believed by the narrators. It is not unlikely that the story at first originated with some interested person or persons, who wished to reserve the mine's riches for him or themselves. However that may be, I do not think American go-ahead-ativeness would be long deterred from exploring it by fear of fighting soldier ghosts. The mine is full of rubbish, and will have to be cleared, before anything certain can be discovered of its comparative richness. It is situate on the south branch of the San Miguel, in a chain of rough mountains, which extend, over a long stretch of country, to the Yagui. San Miguel has some fifteen hundred inhabitants, a very respectable church, two or three flouring mills, and is a town of considerable importance for the country. The mills, however, do not have the credit of producing flour equal to that made at Maguina by a Frenchman, who operates the mills at that place.

The country above San Miguel is well settled, and produces an abundance of wheat. The flour makes its way into Arizona, by way of Magdalena, and the remainder, or the larger part of it rather, goes back to Hermosillo, Guaymas, or Alamo, or to Sinaloa and Lower California.

### CHUPA SONORA.

Three leagues above San Miguel is *Chupa Sonora.* "Chupa" is a Yagui word for *small.* It is a ranche, on the north side of the river, owned by one Signor Campia, of Guaymas. The same gentleman has another ranche three leagues from Chupa Sonora, called *Tabique.* This last place has the advantage of constant water, a number of springs coming out of the ground, forming a pool which is never quite empty. There are three things of interest in Chupa Sonora; one is the *Corral de Piedra*, or "Stone corral," a small ranche, where reside the heirs of a Spanish physician, whose name and fame are both held in grateful remembrance—Don Juan Fuerte. The "Stone corral" has plenty of permanent water, and raises sugar cane and corn. It is a good little ranche.

The second interesting object in this neighborhood is a mine, about four hundred yards distant from the ranche. It is of copper, and has never been worked. I only prospected it, and found it to be a regular vein of three feet in width, that can be traced for three quarters of a mile. I took out some of the ore, which was bright blue and green, and upon assaying it, found it to yield thirty per cent. of copper and ten per cent. of silver. This must be considered a very good mine, and in an excellent situation for working—not too far from the coast, and in a well-provisioned country, where labor need not be too high. A good wagon-road leads to Hermosillo and Guaymas, and, last but not least, there is plenty of water here for mining purposes, which cannot be said of many places in Sonora.

A mile and a half distant is the third wonder of Chupa Sonora, being an old mine, called the *Bat* mine. After a careful examination, I found it to be a gold and silver mine. I made an attempt to explore it with light, but without much success, though I penetrated more than six hundred yards into the bowels of the mountain. The mining had been done after the most approved method. Fine galleries, chambers, shafts, and pillars, denoting that the place had once yielded handsomely and been systematically worked. I was arrested in my explorations by the immense swarms of bats which continually put out my lights, and was finally compelled to abandon the idea of penetrating to its last extent and finding its plan. I should not think it had been entered since the Spanish rule, under which it was worked. It will no doubt remain as it is until some adventurous foreign company comes, with means to take possession of it in the right way—at least, better provided with appliances than I was in my exploring expedition.

The Corral de Piedra is on a small creek, which we follow down to get to the last-described mine, situate as it is in a ravine.

Keeping on down this same creek, through a valley of excellent land, for two leagues from Corral de Piedra, we come to a lone mountain toward the south, which stretches its base down to the creek. On the ridge of this mountain is a lead of silver and lead, which must have been opened at a very remote period. The ore is abundant, and a man could take out a ton per day with ease, the vein is so soft. I took out three hundred pounds, which I sent to a smelting furnace. I found the ore to be very rich, giving one third of its weight in lead, and twelve per cent. of silver. It is a highly fusible ore, requiring no flux whatever, but is very poisonous also. It must contain large quantities of either arsenic, antimony, or mercury. Three of my Mexicans paid for it with their lives, and I barely escaped myself. As it was, I abandoned it. It will require furnaces built on a plan that does not expose the smelter to the poisonous fumes. A furnace, provided with a conductor, to eject these fumes into the atmosphere at a proper height or distance, under the management of a properly-instructed company, would not fail to bring forth very profitable results. The capital thus invested would make large returns without doubt.

One league south of the Corral de las Piedras, and about one mile south of the road to San Miguel, is a silver mine called *Los Llanos*. I went into it to the bottom, about two hundred yards, at an inclination of forty-five degrees, and took out some ores that were lying about, but did not succeed in assaying them. The ore appeared to be, and was, old and decayed. The miners about here give the mine the reputation of great richness, but for myself I was unable to determine.

One mile north, up the San Piedras stream, are the ruins of an old hacienda. The two principal buildings are of hewn stone, very well built, and enclosed by a strong wall of the same material (granite *flöz*), together with about two acres of ground. The strength of the place makes it look as if it had been intended for a fortification. Several furnaces are still standing at this place, where the "gambusinos" from time to time do a little smelting of ores they plunder from the surrounding mines. The furnaces are of the most simple construction, and really not capable of reducing the ores brought in, as the large piles of half-smelted slags lying all around testify. Their quantity, too, shows that this must have been the head-quarters of the surrounding country. The strength of the wall and of the houses was to prevent robbery, no doubt, as the Mexican miners and peons are very apt at appropriating whatever they can conveniently lay hands on. The "gambusinos" are at present busily engaged in breaking up the slags, which are very rich, and re-smelting them with fluxes. Sometimes the process pays quite well; and I came to the conclusion that the original ore must have been rich to have left a fair *per cent.* still in the slags.

### TASAJERA.

Almost in front of this hacienda a small valley opens toward the north. At the distance of a mile and a half is a place called *Tasajera*, where the water springs up out of the ground. This seems to be an old village, and must have had at one time a considerable population. It was probably a town of miners who were employed in the neighboring mines. This city is now silent and in ruins. At a little distance is the grave-yard, covering three acres of land, and quite filled up with grass; some of the graves are marked by head-stones, and some with only wooden crosses. All look old and decayed, as if a century might have passed since life stirred among those mouldering relics. A single house in the village has a modern look, yet must be quite twenty years old from its appearance. This is the way in which towns have flourished and passed away again in this still new country of Mexico. The valley here seems to be excellent farming land. I followed it up about two leagues, and found it wider in this direction, although heading toward the mountains.

### MINES AROUND JESUS MARIA.

At the end of two leagues I came to *Jesus Mariá*, a stock-farm, ruined by the Apaches, and completely broken up fourteen years ago. It was owned by Don Juan Sandovassa, who kept here large herds of cattle of the finest stock. It is now entirely unoccupied. The grazing is good, but water was raised from wells by horse-power. The same is true of the whole valley in this region, where no water comes to the surface. This is at the head of the valley, and the mountains are seen from *Jesus Mariá*. The timber of this valley is mesquit and iron-wood, both of which are abundant.

A mile and a half west from Jesus Mariâ is an old mine called *Mina de la Riboros*, or "snakes' mine." It has been worked a good deal, but only superficially, that is to say, on the surface. The ore is what the Mexicans denominate "Beseco," or *very dry*; though it must have paid, judging from the extent to which it has been worked, the diggings extending over several hundred yards, and going from twenty to fifty feet deep. The name which it bears at present is altogether appropriate—snakes having undisputed possession of it: nor should I ever wish to contend with them for the ownership. A single stone thrown into the mine is enough to arouse the hiss and rattle of fifteen or twenty of the monsters.

Southwest from Jesus Mariâ—about one league—is another mine, called the *Antimoniæ*. It is an ore of antimonial lead and silver, very easily taken out, and very abundant. I smelted some of it, and found it very fusible without any flux, paying about eight per cent. of silver. It is not a rich ore, but this is made up by its abundance and ease of extraction. A company wishing to invest in a Sonora mine, would do well not to overlook this ore. It would be a good speculation. The present owner, *Don Juan Sandovassa,* is desirous of working it, and will receive communications concerning it at *San Miguel de Horcasista.*

North from Jesùs Mariâ, two leagues, is a place named *Los Palmas Quatos,* or the "twin palm trees," a ranche once prosperous and well stocked, but now deserted, having been broken up by Àpaches. Here, as in most parts of this region, the only water was in wells. Three leagues north of this is *Sanbabi,* a stock-ranche once, but now in ruins, as are nearly every one in the northern part of the country. Were water here on the surface, the land would be excellent for farming. The ranche is in the midst of a plain, very fertile, furnishing fine grazing, and mesquit of a good quality. The wells at the farm are yet in good repair, and make a convenient halting-place for the rascally Indians.

Three leagues farther north is another stock-ranche, *Querbabi,* which keeps about two thousand head of cattle, that are watered at a "represso." Querbabi is on the main road from Magdalena to Hermosillo. It would be a good point for a small business, if ever the country is opened to trade. Should a railroad be built in this portion of Sonora, it must pass Querbabi, and from there to Jesus Mariâ and Chupa Sonora, opening a very rich mineral country to the light and benefit of modern civilization. The route given is very direct and available. Not a hill is in the way. In case of such a road, this portion of it will sustain a very heavy population. The country will then once more be swarming with *caballadas*, and furnaces will be in full blast on every hand.

### COUNTRY AROUND QUEROBABI.

From Querobabi another road to El Torreon, now generally travelled, brings us, after ten leagues, to *Tabique*, a ranche for stock; and from there to El Torreon, on the San Miguel river, is about six leagues, over a good wagon-road.

From Querobabi, north, ten leagues, is *Barrajita*, or "clayish," a mining place, on the west side of the road. Gold is here taken out of the mountains, ground in arrastras, and washed out. It pays very well even by this simple process, and I am sure that, with labor-saving machinery, it could be worked with great profit. Gold-washing is practised in all this neighborhood, but, as water is scarce, the operation can only be carried on in the rainy season. From Barrajita to Santa Ana, already mentioned, on the San Ignacio river, is a distance of eight leagues, without water. Santa Ana having been spoken of in describing the road from Altar to Magdalena, we will turn back to the San Miguel, and start up the valley from that place.

Going up the river, in a northeast course, for five leagues, over fine farming lands, and passing two flouring mills in active operation, we come to a gap between the mountains, which we must surmount. Two leagues from the entrance of the gap is a copper mine, once worked by water-power with success. Wood and water are plenty here, as well as ores; but this being a natural road for the Apaches, the mines are all abandoned.

## GOLD MINE OF THE ANCIENTS.

Three leagues farther north, at an angle from the river, is a gold mine very remotely worked, which the inhabitants of San Miguel commonly name *La Mina de oro de los Antiguos*, "The gold mine of the ancients." It was represented to me as *de oro puro*, or "pure gold." I succeeded, in company with a friend, in finding it, though at great risk, as Indian tracks were plenty. We ascended the mountain gradually, until, for the last three miles, the rise became very abrupt and difficult. When we had succeeded in gaining the entrance, we found it full of water up to within forty feet of the surface. I tumbled down large pieces of rock, but could hear none of them strike the bottom. It must have been immensely worked, for the dirt taken out of it almost filled a ravine eighty yards deep. From the position of the mine, it could be easily drained by a tunnel cut in the side of the mountain. From piles of the gross ores lying scattered around, I selected some which, when broken in pieces, showed me gold in a virgin state. I was fifteen days in the neighborhood of this mine, but had no means of working its ores. A company with capital enough to erect arrastras, after first draining it, could make this a splendid property. The poor ores outside the mine would probably pay for the tunnelling necessary to dry it. But the

Indians would make it impossible to work without a large company, or a constant guard of soldiers.

About a mile and a half from this mine, passing along the summit of the mountain, our progress was arrested by a deep cañon. The country here is indeed very rugged. Descending this cañon we discovered a silver mine. I use the term *discovered*, because the oldest Mexican, on our description of it, declared entire ignorance of its existence. This was a special mine, and worked in a particular manner. The lead was perpendicular, opening at the cañon. The ore has been all taken out for more than three hundred yards into the mountain, from top to bottom, giving the excavation the appearance of a rent in the mountain. In some places the lead was very narrow, not wider than a man's shoulders. How the miners had ever got out the ore, quarrying and removing it, I could not discover. A mile away I found the old arrastra still standing. There was plenty of water here, and piles of ores already broken up ready to be ground. I did not test the ore, which looked good. It must have been abandoned many years ago, and very suddenly, as every appearance warrants such a conclusion.

Three leagues up the San Miguel is a village, with some fields of sugar-cane, corn, and wheat. Three leagues to the south of it is the *Real de Alameda*, situate on a creek of running water. L'Alameda is an old *real de mino*, or mining settlement, the mines of Alameda being prominent enough to make it a corporation. They are of silver, and very numerous, which once made this a flourishing place. They are still worked to some extent; but the Indians do so much mischief, not allowing the people to keep any cattle or to go abroad, that not much can be done for them. The most renowned of the mines now worked, is one called *Del Bajio* ("low, flat mine"), under the operations of Don Francisco Campia & Co. The most inferior ore pays "*dos marcos cada buttos*," or two marks to the *butto* of nine hundred pounds. "*El metal de primera da de diez ochos a vieǹte dos marcos el butto;*" or "the first-class metal, pays eighteen to twenty-two marks to the butto." *Del Bajio* is about two hundred feet deep, and though the ore is so rich, the cost of taking out the water is a great drawback. It is carried out in leather bags, on the backs of peons, and considering that the mine is very deep, and that they are not provided with ladders, but only *escaleras*, or notched poles, and that these poles are slippery with water, it is rather wonderful that the feat of emptying a mine of water is accomplished at all. Yet such is the disadvantage of labor in these Mexican mines. Several other mines are worked in the neighborhood; some of which are amalgamated, and others reduced by fire. By far the largest number are abandoned, for lack of energy and means to keep them open. But a large community in future will, no doubt, live upon the produce of these neglected deposits of wealth.

## DESCRIPTION OF THE AMALGAMATION PROCESS.

The process of amalgamation is called here "*el fondo*," and I shall now proceed to describe it with minuteness. The ore, after having been cleansed from impurities, is carefully broken up into pieces of about the size of walnuts. Sometimes the ores are separated into classes of first, second, and third qualities. The ore, after being broken, is put into the arrastra, and ground very fine. After this pulverization it is mixed with salt, in this wise: for ordinary ore, one pound of salt to fifteen of ore, and for first-class ores, one pound of salt to every five of ore. The mixture is then put into a large copper kettle, and boiled over a slow fire, stirring it continually. The boiling is kept up for eight hours, when quicksilver is added in the following proportions: Say, if fifty pounds of ores are boiling in the kettle, one pound of quicksilver is added at first, letting it still boil, and stirring it as before. As fast as the quicksilver is taken up, add more, always in small quantities, so as to test the richness of the ore, and at the same time to avoid using more than is necessary. Continue boiling and stirring as long as the amalgamation (this term is applied to the mixture in the kettle) is of the natural color—this being a sign that the process is not complete. This varies, however, according to the class to which the ore belongs; but, generally, from twenty to twenty-four hours is all that is necessary. When the amalgamation changes to a yellow or cream color, it is proof that the process is complete. At this stage quicksilver enough is to be added to liquidate all the small, detached particles of amalgam. The amalgamation is then taken out to be washed free from all particles of sand or any foreign matter. This washing is performed in a kind of half-barrel tub, called "tina," standing on poles. When washed, the amalgam is ready for the retort. The retort is commonly a flask with a hole bored in the bottom. It is filled with amalgam, and the top carefully stopped with fire-clay. A tube is fixed to the orifice which has been made in one end of the retort, and the quicksilver conducted through this into a reservoir of cold water. The loss of quicksilver by this process is from ten to twelve per cent. This is considered the shortest method of beneficiating the ores of silver, but requires great care and practice in the operator, to avoid being poisoned by the fumes.

(This word *beneficiating* is not an English word, though use will soon make it so. It is derived from a Latin word signifying "to realize," and is extensively used both in Spanish and French. In speaking of ores, it is a common term, signifying their separation from their fluxes or amalgams.)

Next I shall describe the *patio* process. The *patio* is a large level area, paved with stones cemented together by lime, and surrounded by a wall of masonry. On one side there is generally a reservoir, to receive the ground ore as it comes from the stamps, or the arrastra, as the case may be. This reservoir is well cemented, and is called "pila," or a vat, which it really is. In this the ground ore is left to simmer, and evaporate the water it may contain.

When the ore is first taken out of the mine it is in a state of mud or mortar, and is put into the patio in *tortas*, or mounds, several of which are worked at the same time, either by mules or oxen, the cloven hoof of the latter being most effective in stirring and mixing the mud. The cattle are fastened in a row to a horizontal pole, and kept going around and around a stake which stands in the middle of the torta or mound of ore, until it is reduced to a perfectly smooth paste. The dirt is then mixed with salt in the proportion of two "arrobas," or fifty pounds, to each "butto" of nine hundred pounds. It is then generally left at rest for twenty-four hours, before the quicksilver is added. After mixing it again, in the same way as before, the quicksilver is put in, in the proportion of fifteen pounds to the whole torta, and it is stirred and mixed afresh. If the ore is of the class called "*frio*," or cold ores, the amalgam will show a dark, heavy color, and an addition of "magistral" becomes necessary. Magistral is a poor, coarse, copper ore, ground to a powder, and one quarter of its weight in salt added, besides its equal bulk of horse-dung, the whole thoroughly mixed and pulverized. To prepare it, the mixture must be put into a kettle, over a small fire, and well stirred meanwhile. To test it, a little is dropped in cold water, which will assume the color of urine. Care and experience are necessary to learn its preparation successfully. This magistral is added to the amalgam of "cold ores," a little at a time, until the amalgam assumes the natural color of the quicksilver. If the ore is "caliente," or hot, the amalgam will present a bright, foaming, sparkling appearance. It is then necessary to add *lime*, in small quantities, until the amalgam assumes its proper color.

On the same patio several such "tortas" are worked at the same time—often as many as twenty, sometimes more, each worked by from ten to sixteen mules or oxen. The patio is understood to be uncovered, as the heat of the sun's rays is one of the principal agents in the good amalgamation of the ores of silver. In large mines, sometimes, several patios stand side by side, all protected from the outside by a strong, high, stone wall, as well to keep in the natural heat as to secure it from robbers. The length of time which the amalgam must remain in the patio varies according to the quality of the ore and the temperature of the weather. Of course, as in the "fondo" process, the quicksilver is added in small quantities from time to time, until the amalgam begins to get sluggish, heavy, and foaming—a sign that it is sufficiently mixed. It is proved by washing a small quantity. If ready, quicksilver is again added, to well collect all the amalgam, after which the whole undergoes a washing. For this purpose a basin of well-built masonry, rather funnel-shaped, has been erected, with a small aperture at the bottom, the amalgam being put in at the top, which is subsequently stopped. In this basin the mixture is sometimes stirred by a peon, who goes in nearly naked. Others are fitted with a small frame-work inside, to which are fastened revolving arms, the arms carried around by horse-power. The washing, when done by human labor, is very dangerous, and would not be allowed anywhere but in Mexico. After the washing the amalgam is retorted, the same as in the first process. It is then cast into bars, stamped on one side with the value, and sent off to the mint.

In the last-described process the amalgam is commonly put into conical bags, with an opening at the base, made of three or more thicknesses of canvas, or sometimes of buckskin, and the quicksilver squeezed out as much as it can be, before retorting.

## CALCINATION OF ORES.

Some of the ores, of both silver and copper, require calcination before being either smelted or amalgamated. Calcination, or, in Mexican dialect, "quemar," is applied to those ores which are "rebeldes," or refractory to treat. Ores highly sulphurous or arsenicous are, particularly, treated in this way. Some ores, in fact, cannot be reduced without first being calcined three or four times successively. To do this, a square or round kiln, three or four feet high, is walled with loose stones, and a small opening left as a draught and at which to light the fire in the "orno," or pit. The bottom of the pit is then covered with wood to the depth of one foot, green wood being preferred. On top of the wood is placed coarse charcoal, and fine charcoal over that. The ores, either broken or ground, as required, are then spread over the whole, and the fuel beneath ignited. The top of the kiln has been previously rendered air-tight by a plaster made of the fine ore, the porousness of the unmortared stones allowing a sufficient draft for the fire. If the "orno" is properly built and arranged, the first calcination will last through a week. When the operation is complete it is known by the cessation of the smoke and gases which have been escaping from the pit. The ore is then taken out and examined, and the largest lumps are broken up again for a second calcination. That part of the ore which is considered sufficiently reduced is then put apart to be amalgamated; or, if it is to be smelted, is mixed with two thirds its own quantity of more reducible ores for smelting. Sometimes, when the ore is very "rebelde," three or four calcinations are necessary to expel the chemical agents which it contains. Calcination is sometimes performed in a reverberatory furnace, when from eighteen to twenty-four hours of a moderate heat is sufficient to calcine the ores. Sometimes, also, a square cavity is made in the side of a hill, which, by enclosing on one side, makes an inexpensive kiln or furnace.

### SEPARATION OF SILVER FROM COPPER.

Many of the mines of Sinaloa, Chihuahua, and Sonora, are leads of copper-bearing silver, these ores oftentimes containing lead. Where this is the case, it is obvious that they must be reduced by smelting for copper, or lead, whichever is most abundant. After the cakes are smelted, then the reduction for silver commences. In my description of the *Bachuerachi* mine, I gave some account of the way in which copper ore is commonly smelted. I now suppose the slabs or cakes of copper to contain silver, a certain quantity of lead having been added to the cake, making an amalgam of copper, lead, and silver. A common adobe furnace is built, with a fire-place and ash-pit, as required. A platform is placed over the furnace, on which a number of the cakes are placed side by side. Fire is then gradually applied to the furnace. The lead soon begins to run, carrying with it the silver, rendered very fusible by its affinity for lead. After some hours of moderate heat the silver and lead will all have been reduced to a liquid state, while the copper, harder to melt, remains like the skeletons of the former cakes, in large, spongy-looking masses. The lead is then run into moulds, and the silver extracted by another process, which I will describe hereafter.

If, instead of the copper being the predominant metal in the mixed ore, the principal one is silver, which has only enough copper to alter its market value, then the following process is employed to separate them, or, more properly, to cleanse the silver from its impurities, let them be either copper or iron. In refining silver, when it is nearly at the point where it should be run off, the presence of copper is made evident by the crimson color of the bath. It is then necessary to add metallic lead in quantities sufficient to run off from the surface the foreign ore, whatever it may be. To determine the quantity of lead, the color of the bath must be observed, and lead must be added until it assumes its natural hue, when the silver has been quite purified, the copper having been carried off by the lead. The silver is then run into bars, as usual in other cases.

There are great quantities of copper ore in the country which have never been worked for transportation—enough to make, at some not distant day, a great revenue, and to stimulate trade and industry to a very high degree of activity. In the present condition of the country, the reduction of copper ores has been but little thought of or attended to. This metal is worth only eleven dollars a hundred pounds in Mexico, and consequently it has not been thought worth while to work any but the very richest leads, such as yielded a hundred per cent. It is only of late years that the owners of the Bachuerachi mine, on the Fuerte river, have commenced the exportation of copper to England. I predict the day when the Gulf of California will export twenty million pounds of refined copper *per annum*. This will bring a yearly revenue of four millions of dollars, leaving out entirely the per cent. of gold the copper has contained, which, in nearly all cases, will have been something.

## COMMON SMELTING PROCESS OF SILVER ORES.

In the smaller mines of Sonora smelting is carried on in furnaces, or "fundiciones," built of adobe, or sun-dried bricks. These are made of common clay, with a mixture of fire-clay, and are a cheap substitute for real brick. If the fire-clay is good, a furnace may stand for three or four weeks, but in most cases they last only five or six days, and a new lining has to be fitted as soon as the old one is melted.

These furnaces are worked by a bellows kept going by man-power, in the shape of a fat Indian—a very expensive and irregular way of keeping up a blast. The wind of these bellows is introduced into the furnace by means of badly-shaped "alcrevices," or tubes, cast in this country, in common clay moulds, by native artists, who are, besides, often quite expert in casting bells and "fondos," or kettles. The bottom of the furnace is composed of fine, sifted clay, well stamped and pounded. Charcoal is the fuel used. The ore, after first being taken out of the mine, is crushed or broken up, as elsewhere described in other processes. When reduced to the required size, it is taken out to the "rebottura." This is a box over which the ore is laid in successive layers, this wise: one third of ore to two thirds of "scoria," this last being chosen from the richest and most fluxible ores. To these is added "greta," a crude metal of lead mixed with a small portion of iron. This being very fusible, acts as a flux, and helps the ore to smelt and liquidize. If the ore is very refractory, "tesputete" is sometimes added. This is a black, shining, heavy substance, an excellent flux, running like water. When at hand, it will cause the hardest ores to smelt. Another flux for silver ores is "arrenilla." This is a kind of spongy ore, easily reduced to a powder, and very liquifying, being an excellent flux. Another one still, is the "bronce," only used in extreme cases, when the ores have resisted all other fluxes. It is a bright, shining substance, found in deep silver mines. All these fluxes cost nothing but their extraction and carriage. They are used in such quantities as seem necessary upon trial. A little experience will enable the operator to decide upon the proportion.

The ores thus mixed are cast into the furnace by measure or weight—one batea of ore alternating with one of charcoal, though, if any difference is made, it is by lessening the quantity of charcoal. The operators necessary to work a furnace are a "smelter" and a "charger." Sometimes one hand does the work of the other, or does both at the same time, the smelter being his own charger.

If the ore is rich in lead, as many as eight to twelve "planchas," or slabs of metal are taken out daily, the slabs or cakes being yet to be refined, "affianada." This refining is carried on in a kind of reverberating furnace, also built of adobe, with wood for fuel. The furnace has a fire-place, from which the blaze and heat pour over the bath at an inclination of thirty-five degrees. The bellows, which is put in sideways, plays right over the bath, the current of air driving the lead on the surface toward the opening where it is taken out by the "affiandor." The consumption of the atmospheric air has chemically caused the separation of the silver and lead, the silver remaining at the bottom of the "vaso," or smelting chamber. This process requires from three to four hours, and requires experience to conduct it with success.

# ARIZONA.

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# ARIZONA AND ITS MINES.

WHILE I write this sketch of Arizona, the subject of its organization as a territory is being agitated, looking forward to a future when it shall be a state. It lies north of the states of Chihuahua and Sonora, and first came under notice as the *Gadsden Purchase*. It is also erroneously called, in the public prints, the *Messilla Valley*. This Messilla, it is true, is a very important portion of Arizona, but is only a narrow strip of the territory lying on the west side of the Rio Grande. It comprises some good farming lands, and has been until now the best populated portion of Arizona. It is settled by Mexicans chiefly. West of the Rio Grande is a chain of mountains, running north and south, called "Los Miembres," which have a very marked appearance, indicating the presence of gold and silver in their rugged, cavernous depths. South of this chain is the mountain known as *Santa Rita del Cabre*, out of which large quantities of copper have been taken, even before the purchase. This copper found a market in Chihuahua, where it sold readily; and, as Chihuahua used to furnish the city of Mexico with this metal, no doubt some of the Arizona copper found its way thither. The ore of Santa Rita was rich and very abundant, and reputed to contain a fair per cent. of gold. However, this is what is said of all copper; and, though I never succeeded in extracting any, it is but right I should hold my peace when others say they can.

West of the Rio Grande the country is made up of high plains, sandy and grassy alternately. Timber is scarce. On the plains there is none, unless the ground mesquit, whose roots make a very good fire, can be called such. Following the boundary line of Chihuahua, no settlements are met with until we strike the Santa Cruz and Sonorita rivers. The overland mail has a pretty continuous line of stations, in the best situations. Wells are dug at most of these, as water in streams is seldom found in any portion of the territory. The stations will be found named in the table of distances in the Appendix.

North, toward the line of New-Mexico,

where we encounter the head waters of the Gila and its tributaries, is a high, rugged, and mountainous region, furnished in some places with fine oak and pine timber, and in others with an abundant growth of mescal. These mountains are the hiding-places of the thieving Apaches, who, from these mountain fastnesses, pounce down upon the settlements of Arizona and Sonora, and out of which it will be hard to drive them. Nothing, however, but extermination will ever change their thieving and murderous propensities. The settlers of Arizona are loud in their denunciations of government, in taking so little care for their protection. Making all due allowance for exaggeration in their complaints, the force now in the territory is really quite inadequate to their secure possession of life or property. At the same time, the humanity of the government, in using every justifiable means to save the Indians from their really inevitable doom, ought not rashly to be condemned. It is, however, my conviction, knowing the indolence of the Indians, and the poverty of the country which they inhabit, that the government will soon discover the powerlessness of any other means than a heavy chastisement, to stop their inroads upon the settlements, and cure them of their disposition to cowardly and cold-blooded murder.

Apache pass, so called from its being the point at which they issue from the mountains to make their incursions into Sonora, is situate about half way between *Tueson* and *El Paso*, east of the San Pedro.

Crossing over a chain of mountains to the southeast, I came to a tributary of the Gila, called the San Simona, along which is some fine farming land. The tract is not extensive, but is well watered, and has an abundant growth of mescal. It is, however, a camping-ground of the Apaches, some of the tribes always being found here; and no matter whether they be Miembres, Mescaluros, Coyotes, or Pinals, they are equally ready to commit a treacherous murder or to steal the animals of the unsuspecting traveller, who, seeing nothing of them, believes them far away.

From the San Simona, going northwest, I went round a high-peaked mountain, and came upon an extensive sienega abounding in rattlesnakes. This being the dryest season of the year, they had probably come here for water. Forty or fifty miles northwest of this marsh I struck the bend of the Gila river. At this bend a ditch had been cut for irrigation, and there were fine groves of oak and ash on both sides of the river. The channel at this place is forty or fifty yards wide, and is fordable at many places. The water had a brackish taste to me; but I am an epicure in this particular, enjoying pure, fresh water more than most persons, and accepting it as a good gift of God.

The ditch spoken of had irrigated many fields, and the country all around showed traces of a past cultivation. I met with the ruins of several stone houses of a very good construction, some of them looking like fortifications. Going down the river, I observed that there were only here and there narrow strips of fertile land, the rest being all unfit for agriculture. The San Pedro river, whose mouth I crossed, rises in Sonora, out of that chain of mountains which divide Sonora from Arizona; and near its source are considerable mineral resources, of which I shall speak hereafter. The valley of the San Pedro is mostly a grazing country, though a few grain-fields might be made in some portions of it.

The *Babacomero*, a deserted ranche, on the western prong of this river, has water in abundance for machinery or irrigation, and is a valuable property, or *would be* if the Indians, who prevent its being occupied, could be driven away from its neighborhood.

The San Pedro is a considerable stream, the largest of Arizona, except the Rio Grande and Gila. Below the junction of the San Pedro and Gila, the latter comes out of the mountains, and enters the plains. On the south side are the ruins of a large white house, called "Casas Grandes," or big houses. It is some three miles from the river, and of very antique appearance. It is one of the monuments of the country; yet very little do these monuments afford of its history. The only thing in them which the antiquarian can find to aid his researches, are some broken pieces of that kind of pottery used by the Indians and Mexicans. The Indians pretend to believe that these houses were built by the Aztecs, in the time of Montezuma. I am inclined to think, however, that this idea has been imparted to them by some curious travellers, or, perhaps, by the Jesuit missionaries, who once held sway over all the Mexican Indians, wild Apaches with the rest.

All the land around "Casas Grandes" must have been irrigated, as there is no water short of a mile, and it is improbable that water was carried this distance by hand. Besides, the country evidently was under cultivation, as it is at the Pimos villages, twenty miles lower down the Gila. These villages, which cover the whole of fifteen thousand acres, are extensive farms, in a high state of cultivation, and are irrigated from the Gila. The Pimos and Maricopas Indians are in quite an advanced stage of civilization, own these villages, and raise stock, wheat, corn, beans, pumpkins, and some very fine-flavored watermelons. These Indians have been useful in furnishing grain to the United States troops and overland mail company, and deserve praise for their services to the California emigrants, whom they have met on the road with provisions, in many cases. They are very friendly tribes, giving their protection when needed against the war-like Apaches.

Between the Pimos villages and the junction of the Gila and Colerado, there are some fine valleys, where good settlements might be made. Even Indian culture produces good crops on this soil, and with irrigation and the superior tillage of the whites, the products would be almost marvellous. A few thousand farmers would find desirable locations here. South of the Gila, the soil, when irrigated, yields all kinds of crops in luxuriant abundance. At the junction, on the south side, is located Arizona city. This is the head of present navigation on the Colerado river. If ever the mines of Arizona realize the anticipations of its friends, this place cannot fail of being an important point for trade.

### ROAD TO FORT BUCHANAN.

Arizona city is two hundred miles below the Pimos and Maricopas villages. Opposite Arizona city, on the north side of the Colerado, and in Upper California, is *Fort Yuma* These places are seventy-five miles distant from the mouth of the Colerado, though by the river route it is twice as far. The lines of Arizona and Sonora meet about twelve miles below Arizona city. Below this point, to its mouth, the Colerado is the boundary line of Lower California and Sonora. The overland mail route to California goes by Arizona city and the Pimos villages, following the irrigable valley land of the river Gila. There are no other settlements on the road, except the mail stations.

From the Pimos villages southward, ninety miles, to *Tueson*, there are no settlements except the mail stations. The names of the stations are *Saketon*, *Soldier's Grave*, *Bluewater*, *Picachee*, and *Point-of-Mountain*. This last is eighteen miles from Tueson in the Santa Cruz valley, one of the most fertile in Arizona. The Santa Cruz stream does not flow into the Gila, but sinks a short distance below Tueson. Tueson is an old Mexican town, with many Americans settled in it, and is the centre of a little trade, made by the overland mail route. From Tueson to the mission of *San Xavier* is eight miles, southeast, following the valley of the Santa Cruz. The mission is on a small eminence, which gives a beautiful view down the valley. It is under the entire control of the Papagoes Indians, who own and farm it. The church is a building of fine architectural finish, as I esteemed it, and my judgment was confirmed by that of a Catholic priest from the Rio Grande, who was on a tour. He pronounced it the finest building on the Pacific slope of Northern Mexico. It is furnished with handsome and costly ornaments, and the Papagoes keep it in good repair. No priest resides here, but occasionally one comes to preach. It is reported that the Papagoes have great treasure buried and hidden, belonging to the mission.

Four miles below the mission, past small but rich valley farms, we come to *Punta de l'Agua*, where the waters of the Santa Cruz river rise again ; for it is above this place that they lose themselves in the sand the first time, after which they rise at Punta de l'Agua, run to below Tueson, and sink again forever. Punta de l'Agua is owned by an enterprising German, who has a comfortable residence in a desirable situation, and, most of all, a truly amiable lady for his wife. This is one of the few places in Arizona where a traveller may find a good, old-fashioned meal of ham and eggs, butter and milk.

Pursuing the same direction for ten leagues up the same stream, we come to *Canoa Ranche*, a place owned by Mr. Richard Dorse, an old pioneer, known to many of his countrymen. He has a good stock of horses, cattle, and hogs, a good house, and plenty of grain for the accommodation of travellers. The only want about his establishment is the presence of a female companion as amiable as himself. As yet ladies are very scarce in Arizona.

Five leagues farther up the valley is the ranche of *Reventon*, owned by Mr. Brevoort, who has a fine residence on good land; good water, too, but not enough for irrigation. There are six hundred head of cattle on this place, which is in a good state of improvement, and bids fair to become one of the finest in the territory of Arizona. Three leagues from here, up the river, is *Tubac*, the largest farming village in this territory. A good deal of grain and fruit are raised here. The place looks old and by no means inviting. Of its two hundred inhabitants, a large proportion belong to the class known as "hard cases."

Up the stream from Tubac is *Calabazas*, a stock-farm, with good buildings and a good corral. This is another piece of property belonging to Gandara, who has the credit of making the first settlement in Arizona. When Calabazas was built, in 1850 or '52, the Indians were doubly hostile to what they now are, since the American garrisons at Fort Yuma and Fort Buchanan overawe them. The corral at Calabazas, which encloses four acres, is walled with adobe, about four feet in height, and is strong and well made. At one time Gandara had here five thousand head of sheep, and cattle in large numbers. This ranche is situate on the main Arizona road to Hermosillo and Guaymas, and is only six miles from the line of New-Mexico. On the line is another stock-farm, called *Nojales*, in a fine little valley very well adapted to farming and stock-raising. Nojales is on the road that goes through Casita, San Ignacio, and Magdalena. Farther up the valley are some farms in agreeable situations, and still more places where comfortable homes might be made.

It is eight leagues from Nojales to *Santa Cruz* in Sonora, in the same valley. Santa Cruz has a population of six hundred people, principally farmers, who raise corn, potatoes, and vegetables. There is one flouring mill in the place. The grazing in the valley is very fine; but the Apaches have cleared out the stock pretty effectually. The stream here heads into Arizona again, its rise being only a few miles away.

Taking the old emigrant route toward the east, we come to the ranche of *San Pedro*, also in Sonora. About San Pedro is some good land, and excellent grazing. The state of Sonora keeps a garrison of twenty men at this place to keep the Indians in check, but little enough is the good they do. Santa Cruz once had a garrison, when it was a presidio; and there was more land formerly cultivated than now, at this place. An old ruined church, broken and falling, reminds us that we are in a broken and ruined country. Going from Santa Cruz to Fort Buchanan, our road takes us north, over a spur of the Santa Cruz mountains. Fifteen miles away is *Camp Jecker*, in a very pleasant spot, the present headquarters of the survey of Sonora. In the mountains, half a mile away, and seven thousand feet above the level of the gulf water, is the *Patagonia* mine. Twenty miles beyond Camp Jecker is Fort Buchanan, where two hundred United States troops are garrisoned.

## FORT BUCHANAN.

Fort Buchanan is situated on the head waters of the Sonorita. The valley is a fine location in some respects, but unhealthy. The fort, however, has a pleasant look, being surrounded by oak groves and the verdure of the valley. From here the *Sienegas* station of the overland mail is about thirty-five miles distant. Four miles down the valley is the United States and Boundary Hotel, or, as it is sometimes called, the White House; and five miles farther down is the residence of Mr. Wordsworth, the largest business man of Sonorita. Another two miles away, down the valley, is the little farm of Mr. Ashes; while two more miles bring us to Mr. Ward's ranche for stock and grain raising. Beyond this, four miles, is the Marshall farm, a property that was first owned by Mr. Wm. Thompson, of Texas, an old pioneer. This farm is a good piece of land, with something like an orchard on it. Two miles below is the residence of Mr. Pennington, formerly of Texas; and four miles farther is the home of Captain Sharp, of the Mexican war, with a good farm. Not far below this point the Sonorita loses itself in the Santa Cruz valley.

## MINERAL RESOURCES OF ARIZONA.

I would be glad to pass over this part of my task, were it not that I might be accused of intentionally omitting to mention what little

I know upon the subject. As it is, I will give what information I can for the benefit of the curious or interested reader.

In a small chain of mountains west of *La Masilla*, is the old Stephenson mine, said to have yielded handsomely. It is in a favorable situation, being near to the settlements. Its owner I am not acquainted with. Next is the *Santa Rita* copper mine, said to contain a per cent. of gold. The ore of this mine has the advantage of smelting easily, which is a desideratum, as copper ores are usually very hard to smelt.

There are numerous mines on the head waters of the San Pedro, but as yet unworked. By far the most valuable of them head in Sonora, and are already treated of in my chapter on that state. They are of copper, silver, and lead, all frequently in the same vein; but the Apaches render it dangerous to work them at present.

In the Santa Cruz mountains are several mines, some of which have been worked for many years. Among these is the *Empire* mine, not one of the first class. The *Montezuma* is one whose ore is copper, with some lead and a little silver. These two are only a few miles from Santa Cruz in Sonora. With the mine of the St. Louis company I am unacquainted.

The Patagonia mine is situate about half a mile from the camp of Capt. C. P. Stone's commission. The ore is lead and silver, but the mine is in the hands of those who have very little practical knowledge of mining, and is very badly managed. It is in a good situation, and smelts easily. The furnaces, however, are badly put up, and of poor materials.

The Santa Rita mine furnishes some specimens of ore worth mentioning, from some small veins not yet worked. In the Santa Rita mountains are some old mines, which have been partially worked. In the valley of the Santa Cruz is the *Sophori* mine, in operation, but of its richness I am uninformed. The "Sonora Mining Company of Arizona" own several old Spanish mines, and several new ones, and carry on mining on a larger scale than any company in the territory. They practise the barrel amalgamation process; but I prefer the patio, which is more tedious, but gives a better return, and saves a large expense in machinery, which is a good thing in a country where Mexicans are chiefly employed, and where white labor is high.

All the southwestern part of Arizona shows signs of volcanic action. I may be holding a mistaken opinion, but I doubt the existence of any rich silver deposits at a great depth. All the characteristics of the country forbid such a belief, and none of the mines have yet sunk a shaft deep enough to contradict such an opinion as I have of the mineral resources of the country. Capitalists wishing to invest should leave no means untried of finding the true worth of ores, and the per cent. contained in them of gold, silver, or copper; recollecting that the crucible assay will always give a greater return than the same ore yields when reduced in larger quantities. The poorer and richer ores should be proven by assaying them well in rather large masses, and a deduction made for the slags, which always contain some proportion of metal. The width of a vein should be ascertained, as well as its hardness, or the metal may chance to be not worth the extraction. In short, the cost of extraction must be compared with the per cent. yielded. As a general rule, I should prefer a mine with abundant poor ores to a rich one with a narrow vein. Mines of the former class are to be found, but are not very common. Only those who have practical knowledge should undertake silver mining. Machinery should never be employed except where it is necessary, and where fuel can be obtained readily; otherwise, in the remote mining regions, it will prove very expensive. Intelligent white labor is hard to secure, and demands high wages; therefore, where American genius can be brought to bear with Mexican plans and labor, the results are often of the best kind. For instance, the ancient furnaces, or "fundiciones," centuries old in plan, when a little altered and improved, are capable of rendering the most satisfactory returns. *Merely* scientific men should not be employed by companies wishing to mine, but those persons who from experience have become eminently practical. A great many failures have come from neglecting to observe this common-sense rule.

# APPENDIX.

# APPENDIX.

### PLAN OF A NATIONAL PACIFIC RAILROAD.

I CHOOSE the most southern route possible, for reasons which will appear as I proceed. I shall not express any preference for either of the two routes east of El Paso—either that one coming from Memphis direct, or one coming by way of Austin and San Antonio, Texas, may be selected. But on the route west of El Paso I must dwell at more length, being convinced that I *do know* the most favorable route to the Pacific, as well as the shortest and best paying one.

West of El Paso the country offers no obstacle to a railroad for two hundred miles, when it reaches the San Simona Pass. The road here should turn southeast, over a large plain. (Colonel Greg's route turns at Apache Pass, some forty miles farther west, and keeps on the side of the American line to San Diego, California.) From San Simona Pass, there are forty or fifty miles of gradual descent, over the plain, until the road reaches San Bernardino Springs, the head waters of the Yagui river. At this point all the trade and produce of the Yagui branches, and the mineral wealth of this region would naturally centre. From San Bernardino the road would go a little southwest, around a high mountain, which here is the divide between the Sonora and San Pedro waters, coming from the southeast and stopping abruptly on the plain, leaving the San Pedro on the right and itself on the left, with a pass for the road between. Beyond the mountain the road will keep on over this plain, until it strikes, with a gentle decline, the head waters of the northwest prong of the Sonora river, which it will follow down, taking in all the rich mineral and agricultural regions of that river.

Arriving at the junction, it will go on to Banerachi, Chinipas, Arispe, Senoguipe, Banamichi, Huepaca, Guadalupe, Ures, Topahui, Hermosillo, and thence to Guaymas, either by the present stage route, or taking in the mining and farming country of Santa Rosalia, Subiate, San José de Pimos, and San Marcial. From San Marcial it might follow down the stream to Guaymas, or, with a slight variation from a straight line, take in its course the mining and agricultural regions of the Lower Yagui valley. Guaymas being the chief port of the Gulf of California, it will gather business from all the smaller intermediate ports; also from Lower California, Mazatlan, Culiacan, Sinaloa, Fuerte, and the Mayo valley. From all these points business will flow toward the port where the railroad terminates, and new life and vigor be infused into these rich but now lifeless countries. A steam communication from California would be easy, and of great importance to trade as well as to travel, which would find this route equally good in summer and winter.

I do not claim accuracy in my estimate of distances; but, having travelled over the whole route, I know it to be feasible. That it would pay better than a more northern route through a country miserably poor in mineral resources, and entirely devoid of agricultural lands, cannot be, for a moment, doubted.

The vast deserts on both sides of the Colerado offer no inducement to any outlay in that direction; and the possibility of a yet more southern route is not to be contemplated. South of San Bernardino the mountains are continuous, close together, steep, and with no passes where they can be avoided. It is true that there are several routes of travel now in use, but they are only trails for pack-mules, and hardly practicable at that. I may safely say that Durango and Chihuahua will never be connected with Mazatlan and Fuerte by railroad. They are separated by two hundred miles of high, impassable mountains. The great Sierra Madre mountains rise here in all their majesty in opposition to the enterprises of men. Or, were a road through these mountains possible, the expense of building it would not be repaid by a hundred years of travel and exchange. Should a road be built on either side, as it might be, there would still be one hundred and fifty miles which would require the services of pack-mules.

From the Rio Grande to Chihuahua or Durango no obstacle exists, as the country is mostly formed in plains and table lands, with small ranges of hills, easily overcome.

## PLAN OF A RAILROAD FROM GUAYMAS TO FUERTE VALLEY.

This road to the mineral regions of the Fuerte valley, would leave Guaymas and go to Old Guaymas, to Belen, and Toron on the Yagui, crossing the river to Bakan, Cocori, Navajoa on the Mayo, and thence to Alamos. From Alamos to San Antonio, and crossing the Cuchiagua creek to a chain of mountains, which would be passed through a cañon of gradual ascent, after which a small ridge must be passed, and the descent made through another cañon to the Fuerte river. Crossing the Fuerte to Toro, and thence to Chois, the centre of a wealthy mineral and agricultural district, the road might terminate here, or send a branch to the city of Fuerte, and from there to the mouth of the river, where it might connect, by steamers on the gulf, with the other ports of Mexico and Lower California.

## ROAD FROM FUERTE TO MAZATLAN.

There is no difficulty in the way of a road from Fuerte city to Ocoroni, a town of Sinaloa. Thence, crossing the Sinaloa river, to Culiacan on the Culiacan river, and passing over a rich country, coming to the Cosala river, which must also be crossed, and thence to the San Ignacio. The country is generally undulating, with some small hills, which may be either levelled or avoided by turns in the road.

From Mazatlan, a road may connect with the Durango trade by running a road to old Mazatlan, thence to San Sebastian, thence to the foot of the mountains of Copala and Panneo, as these connect with the pack trains over the mountains, to a place where they intercept another road from Durango westward.

From Culiacan, a branch might converge toward the mines, and another to Atlanta, on the gulf. All these routes pass through agricultural countries unsurpassed by any in the world, which, at the same time, are rich in minerals.

### THE EASTERN SIDE OF THE MOUNTAINS.

Taking the Rio Grande as a starting-point on the eastern side, the road might leave San Antonio, Texas, going to old Fort Duncan, on the Rio Grande, thence to Piedras Negras, thence to Neva, thence to San Juan, thence to the junction of the Sabine and Alamo streams, thence to Santa Rosa, thence to Monclova, thence to Parras, thence to Alamo de Parras, thence to Cuencame, and thence to the city of Durango. From Durango, a road may be made, for about eighty miles west, to the Cojote station, to connect with the pack trains over the mountains to the Mazatlan line, below Copola and Panneo.

Or, starting from San Antonio, southwest, to the Presidio de Rio Grande, thence to Santa Rosa, being only a slight deviation from the former route.

From Mïer, on the Rio Grande (two hundred and fifty miles above the mouth of the river), to Ceralvo, there is a good wagon-road even now; also from Ceralvo to Marin, and thence to the city of Monterey, the capital of both Nueva Leon and Coahuila. From Monterey the road goes to Rinconad, thence to Saltillo, thence to Buena Vista, thence to San Juan de Vaccaria, thence to Ranchos de los Murchachos, and thence to Parras. This route is an available one for a railroad.

Or, there might be chosen the route from Matamoras, twenty-five miles above the mouth of the Rio Grande, to Los Torros, thence to Los

Chinos, thence to Cadeireta, thence to Monterey, thence to Saltillo, thence to Parras, thence to Cuencame, and thence to Durango, as above.

From Parras to the city of Chihuahua is a fine wagon-road, well travelled. From Durango to Santiago Pescar, and on to Chihuahua, is also a road, but of very little utility.

From Chihuahua a branch road may go to Concepçion, thence to Los Bajos, and connect there with pack trains either to Guadalupe Calvo, and thence westward to Culiacan, or to Los Bajos, and thence to Jesus Mariâ, whence pack trains go over the mountains to Chois, in the Fuerte valley.

The road from Chihuahua to Jesus Mariâ, thence to Chinipas, and thence to Alamos, is only fit for pack animals. From Chihuahua, a road may connect with El Paso on the Rio Grande, without difficulty, as the country here is high table-land. The road from Chihuahua to Cobre Grande, and thence to Arispe, is only fit for pack animals. Chihuahua is the centre of an agricultural country of some extent, and has a valuable mining region to the west of it.